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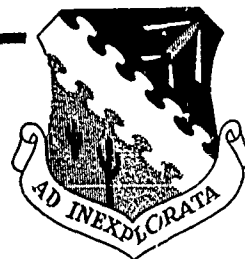
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**AIR FORCE
FLIGHT EVALUATION
(SYSTEMS) OF THE
A-10A PROTOTYPE AIRCRAFT
APPENDIX V - WEAPON DELIVERY**

JOSEPH C. ORWAT
Captain, USAF
Weapon Delivery Project Engineer

TECHNICAL REPORT No.73-3

**JUNE 1973
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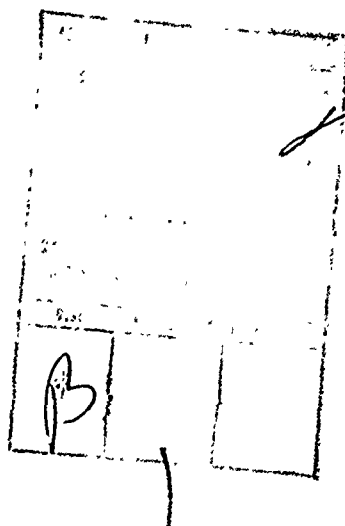
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⑥ **AIR FORCE
FLIGHT EVALUATION
(SYSTEMS) OF THE
A-10A PROTOTYPE AIRCRAFT,
APPENDIX V, WEAPON DELIVERY.**

⑨ Final rept.,

⑩ JOSEPH C. ORWAT
Captain, USAF
Weapon Delivery Project Engineer

⑪ Jun 73

⑬ AFFTC-F-72-4-9

⑫ 123 p.

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FOREWORD

The Air Force Flight Evaluation (AFFE) of the A-10A aircraft began on 10 October 1972 with the acceptance of the first aircraft from the contractor. The second aircraft was accepted on 24 October 1972. A total of 138.5 hours was accumulated during 87 flights. The program was completed on 9 December 1972.

This appendix presents the results from the Weapon Delivery phase of the AFFE. The basic report, FTC-TR-73-3 Air Force Flight Evaluation (Systems) of the A-10A Prototype Aircraft, published under separate cover, presents the results of the general system evaluation, quantitative reliability and maintainability, and personnel subsystem test and evaluation.

Test authority for the program was provided under Program Introduction Document No. F-71-7-10, submitted by the A-X System Program Office, and AFFTC Project Directive No. F-72-4-9.

Foreign announcement and dissemination by the Defense Documentation Center are not authorized because of technology restrictions of the U.S. Export Control Acts as implemented by AFR 400-10.

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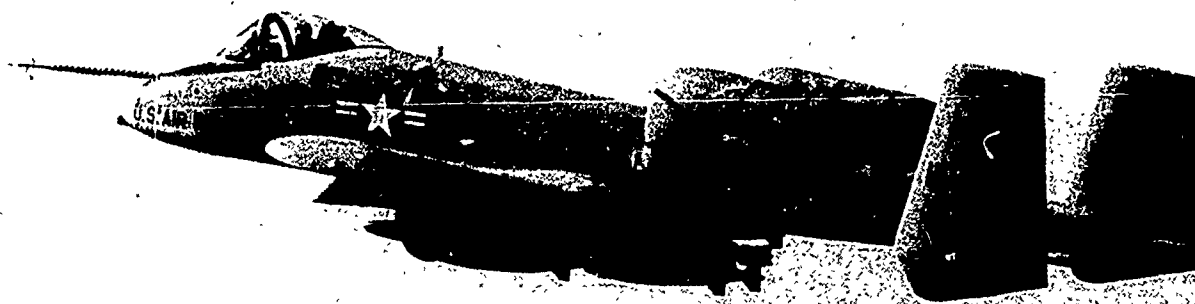
table of contents

	<u>Page No.</u>
LIST OF ILLUSTRATIONS _____	iv-v
INTRODUCTION _____	1
PROGRAM OBJECTIVES _____	1
TEST PROCEDURES _____	2
Weapon Delivery _____	2
Bombing _____	2
Strafing _____	3
OPTIMUM WEAPON DELIVERY PROFILE _____	4
WEAPON DELIVERY EFFECTIVENESS ANALYSIS _____	4
Weighting _____	5
K-Factors _____	6
Scoring _____	6
Explanation of Terms _____	6
TEST RESULTS _____	8
Bombing _____	8
Strafing _____	8
Optimum Profile _____	8
Bombing and Strafing Effectiveness Scores _____	8
MISSION SUMMARY _____	10
TEST DATA _____	75
REFERENCE _____	113

list of illustrations

<u>Figure No.</u>	<u>Title</u>	<u>Page No.</u>
1	Scoring System _____	5
2	Scatter Plot, Profile Alpha _____	76
3	Scatter Plot, Profile Bravo _____	77
4	Scatter Plot, Profile Charlie _____	78
5	Frequency Distribution, Feet, Profile Alpha _____	79
6	Cumulative Distribution, Feet, Profile Alpha _____	80
7	Frequency Distribution, Feet, Profile Bravo _____	81
8	Cumulative Distribution, Feet, Profile Bravo _____	82
9	Frequency Distribution, Feet, Profile Charlie _____	83
10	Cumulative Distribution, Feet, Profile Charlie _____	84
11	Frequency Distribution, Mils, Profile Alpha _____	85
12	Cumulative Distribution, Mils, Profile Alpha _____	86
13	Frequency Distribution, Mils, Profile Bravo _____	87
14	Cumulative Distribution, Mils, Profile Bravo _____	88
15	Frequency Distribution, Mils, Profile Charlie _____	89
16	Cumulative Distribution, Mils, Profile Charlie _____	90
17	Frequency Distribution, Feet, All Profiles _____	91
18	Cumulative Distribution, Feet, All Profiles _____	92
19	Frequency Distribution, Mils, All Profiles _____	93
20	Cumulative Distribution, Mils, All Profiles _____	94
21	Cumulative Distribution, Feet, Profile Alpha, First Pass _____	95

<u>Figure No.</u>	<u>Title</u>	<u>Page No.</u>
22	Cumulative Distribution, Feet, Profile Alpha, Second Pass _____	96
23	Cumulative Distribution, Feet, Profile Alpha, Third Pass _____	97
24	Cumulative Distribution, Feet, Profile Bravo, First Pass _____	98
25	Cumulative Distribution, Feet, Profile Bravo, Second Pass _____	99
26	Cumulative Distribution, Feet, Profile Bravo, Third Pass _____	100
27	Cumulative Distribution, Feet, Profile Charlie, First Pass _____	101
28	Cumulative Distribution, Feet, Profile Charlie, Second Pass _____	102
29	Cumulative Distribution, Feet, Profile Charlie, Third Pass _____	103
30	Frequency Distribution, Profile Delta, Hits _____	104
31	Frequency Distribution, Profile Delta, Bulls _____	105
32	Cumulative Distribution, Profile Delta, Hits _____	106
33	Cumulative Distribution, Profile Delta, Bulls _____	107
34	Frequency Distribution, Profile Echo, Hits _____	108
35	Frequency Distribution, Profile Echo, Bulls _____	109
36	Cumulative Distribution, Profile Echo, Hits _____	110
37	Cumulative Distribution, Profile Echo, Bulls _____	111
38	Scatter Plots, Optimum Profile _____	112



INTRODUCTION

This appendix presents the results of the Weapon Delivery phase of the A-10A AFPE. This evaluation was part of the A-X Competitive Prototype Program. Two A-10A aircraft, S/N 71-1369 and 71-1370, were assigned to the AFPE. A total of 138.5 hours was accumulated during 87 flights of which 60.7 hours were devoted to weapon delivery missions and 13.7 hours to systems evaluation. The remaining flight hours were devoted to performance, flying qualities, and operational suitability evaluation.

After the AFPE was completed, an additional test was conducted at the request of the A-X SPO to obtain the best scores using contractor selected release conditions.

PROGRAM OBJECTIVES

The objectives of the Weapon Delivery phase of A-X AFPE were to:

1. Evaluate the A-9A and A-10A prototypes in the weapon delivery area to detect differences in capability.
2. Apply a statistical method to produce a score for each prototype.
3. Provide inputs to the Source Selection Evaluation Board.

To accomplish these objectives, the weapon delivery evaluation was based on the following:

1. The tests were designed to increase observed differences between the competing aircraft by selection of the most difficult delivery conditions from a combined pilot/aircraft point-of-view. The test was not designed to show the best possible A-X accuracies.
2. Four closely matched pilots were selected to fly both prototype under identical conditions. No attempt was made to differentiate between inherent aircraft accuracy and pilot ability.

Within these constraints, the tests were further designed to provide realism and measure effectiveness by considering the following:

1. Bombing hit percentages within radii close to the nominal lethal radii of the MK-82.
2. Bombing miss percentage outside specified rectangles to represent hazards to friendly troops.
3. Strafing hit percentages within a circle representative of the vulnerable areas of a tank.
4. Simulated combat delivery conditions with short tracking time, no dry passes, and limited passes per profile with run-in heading changes consistent with range safety limitations.

TEST PROCEDURES

The procedures used as a guide in assessing the weapon delivery performance of the competing aircraft were prepared jointly by USAF, AFSC, ADTC, ASD, TAC, AFFTC and private consultants.

WEAPON DELIVERY

Two AFFTC test pilots and two TAC pilots were selected to participate in the A-X weapon delivery portion of the AFFE. These pilots participated in an A-37 Weapon Delivery Training and Evaluation Program with three other pilots prior to the AFFE. Profiles and procedures designed for the AFFE were utilized. Weapon delivery scores obtained during this evaluation were considered to insure the selection of four closely matched pilots to participate in the AFFE. Results of this evaluation are contained in reference 1.

An A-9A and an A-10A aircraft were flown as a flight of two for weapon delivery over the Precision Impact Range to reduce environmental variables. They flew the same sequence of headings, profiles, and events. A special scheduling system was implemented to insure that each of the four pilots flew an equal number of missions in each aircraft and that each aircraft flew as flight lead and number two an equal number of times. In addition, the A-X weapon delivery pilots rotated between the A-9A and A-10A to permit flying of different aircraft on consecutive sorties whenever possible.

The tests were flown in five different profiles designated as Alpha, Bravo, Charlie, Delta, and Echo. A description of these profiles is presented in table I. No dry passes were allowed. Existing pilot balloon (PIBAL) winds were provided to the pilots prior to each mission. Each aircraft was ballasted to simulate the operating weight and inertias of the proposed production aircraft. Weapon loading was full 20mm ammunition in all cases plus either 10 MK-82 (one per pylon) or 6 B-37K racks with BDU-33's (4 per rack) and 4 inert MK-82's on single pylons on the outer most stations.

BOMBING

The release altitudes were selected to assure recovery within the aircraft and range operating restrictions. A specified roll-in altitude was used for each profile and the release altitude calculated to permit pullout using a 2-second buildup to 4 g's (or 80 percent of maximum usable lift). The minimum altitudes for the profiles were above the MK-82 fragmentation pattern. The difference between the roll-in altitude and release altitude was set to the minimum feasible level based on previous A-1 and A-37 flight experience. In any case it did not exceed six seconds tracking time for bombing. One bomb was delivered per pass with the bombing attack azimuth changing at least 90 degrees for each pass. These attack headings corresponded to the cardinal headings. Three bombing passes were performed per profile, i.e., three profile Alpha deliveries followed by three profile Bravo deliveries, until all programmed bombs were released. The initial profile for a mission was rotated so that an equal number of bombs were released for each profile. Bomb release sequence by station was stipulated prior to mission launch. During the mission, weapon impacts were recorded by range personnel using the triangulation method. Immediately following the mission these impacts were surveyed.

STRAFING

Strafing passes were conducted on the Dual-Air-Ground-Range (DAGRAG). Four strafing passes were performed per profile on the same heading. Strafing duration was limited to 60 rounds per pass by a timer. A new strafing banner was used for each pass. These banners were mounted at 45 and 15 degrees to the vertical for profiles DELTA and ECHO, respectively. Tracking time for the DELTA profile was limited by restricting the roll-in altitude as described for the bombing profiles. ECHO tracking time was restricted by initiating the final approach at a specified altitude and ground distance from the target. The hits in the 20- X 20-foot banner were scored to determine the hits within a 3-foot and 6-foot radius for profiles Echo and Delta, respectively.

Table I

A-10A WEAPON DELIVERY RELEASE CONDITIONS

	Flight Profile				
	ALPHA	BRAVO	CHARLIE	DELTA	ECHO
Base altitude (ft AGL)	8,200	4,500	2,600	5,100	1,100
Base airspeed (KIAS)	220	220	220	220	165
Dive angle (deg)	60	45	25	45	10-20
Speed brake (pct)	30	40 ^a 45 ^b	35 ^a 40 ^b	30	0
Power setting	IDLE	IDLE	IDLE	IDLE	IDLE
Release altitude (ft AGL)	4,550	2,250	1,250	2,700	--- ^c
Release airspeed (KIAS/KCAS)	340/350	265/275	240/250	290/300	165/175
Sight setting (MILS)	100 ^a 096 ^b	160 ^a 158 ^b	200 ^a 198 ^b	000	006

^aBDU-33

^bMK-82

^cCease fire before 1,600-foot foul line.

OPTIMUM WEAPON DELIVERY PROFILE

The weapon delivery portion of the A-X AFFE was designed to detect and emphasize differences in capability between the A-9 and A-10 aircraft. As a result the best possible accuracies were not shown because the optimum release condition for each aircraft was not used. Therefore, an additional test was designed to obtain the scores for each aircraft using the contractor's estimated optimum delivery condition. This test was accomplished after the completion of the weapon delivery phase of the AFFE.

The basic test procedures used during this test were the same as those used in the weapon delivery portion of the AFFE with the following exceptions:

1. Only one contractor-defined profile was used during this evaluation.
2. All releases were made from the same attack heading.
3. Twenty-four BDU-33 bombs were dropped from each aircraft during each mission.
4. The four pilots used during the AFFE weapon delivery evaluation were used in this test. In general, the two pilots with the best scores in the A-9 aircraft evaluated the A-9 and the two pilots with the best scores in the A-10 aircraft evaluated the A-10.

WEAPON DELIVERY EFFECTIVENESS ANALYSIS

Weapon delivery assessment was based on weapon effectiveness where weighting factors were assigned to scoreable bomb impacts, gross bomb misses and scoreable strafing impacts. The scoring target arrangement is illustrated in figure 1.

For bombing, each bomb was scored as a hit (impact within Area I), or a gross miss (impact within Area II). Radius of the circle for Area I (R) was 40 feet for Profile Alpha, 35 feet for Profile Bravo, and 30 feet for Profile Charlie. Dimension X was 260 feet, 150 feet, and 120 feet for Profiles Alpha, Bravo, and Charlie, respectively.

Likewise, a radius of 6 feet for Area III (r) was used for strafing impacts for Profile Delta and a radius of 3 feet for Profile Echo.

As will be shown later, bomb impact in Area I, or a strafing impact within Area III, was additive (after weighting) to the score. However, gross bomb misses in Area II, subtracted (after weighting) from the score, since such impacts could represent strikes on friendly troops.

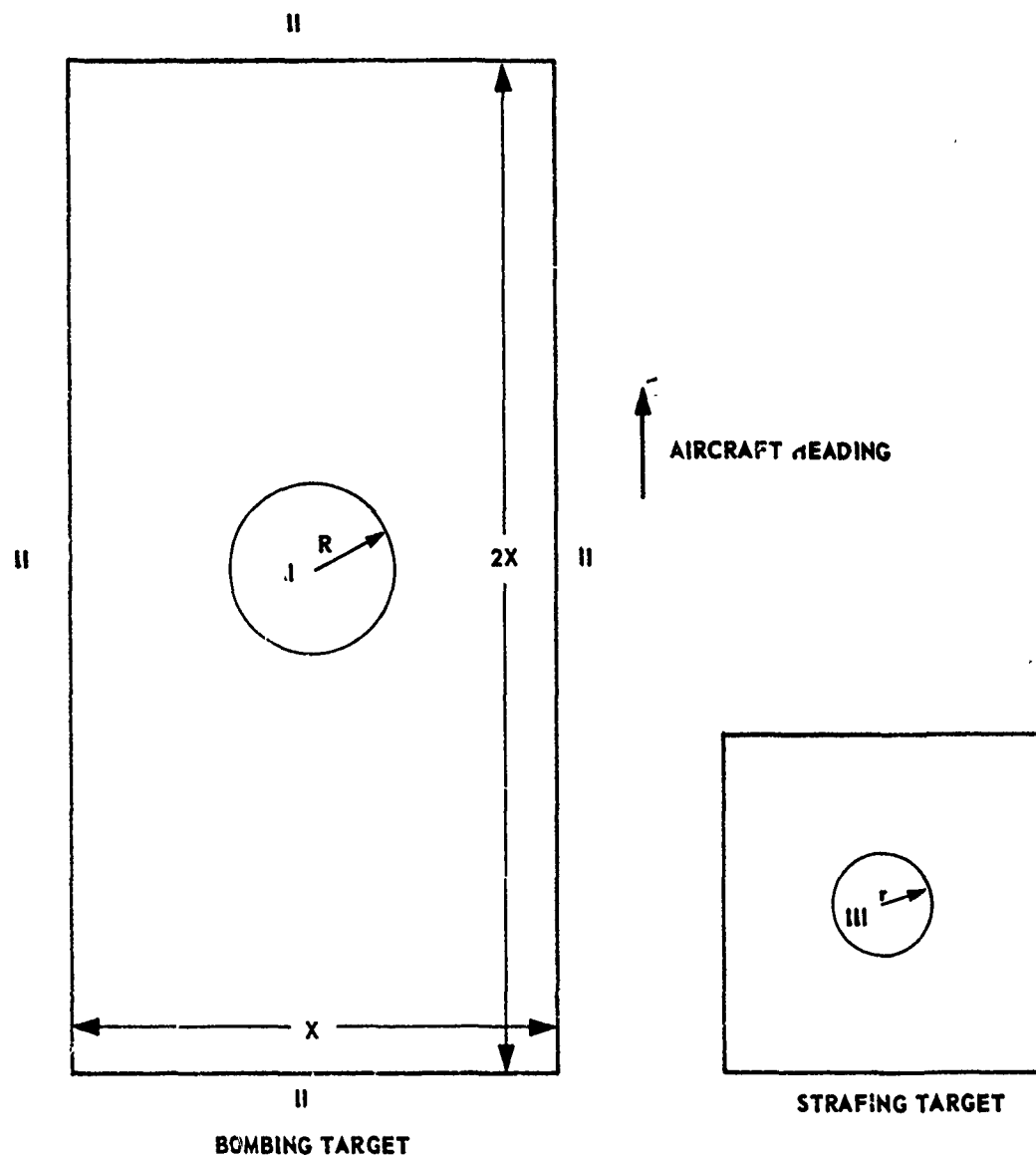


Figure 1 Scoring System

WEIGHTING

The profile weighting factor was applied to the various profiles to designate importance or degree of difficulty. The weights were:

Alpha	30%
Bravo	30%
Charlie	40%
Delta	50%
Echo	50%

The area weight was applied to impact areas based on hits within Area I and Area III being highly desirable and hits within Area II undesirable since it was representative of friendly troop positions.

The weights were:

Weight for bomb impact Area I	200
Weight for bomb impact Area II	-100
Weight for strafing impacts Area III	100

(Note: Bomb impacts within the rectangle X by 2X, but outside Area I, were scored as 0 since such impacts do not constitute an effective target kill.)

These weights were then apportioned to sum to a total average score of 100. The weights were used in the computation of K factors as shown below.

K-FACTORS

K_{AH}	=	6 (0.3) (200)	=	Profile Alpha hit weight
K_{BH}	=	6 (0.3) (200)	=	Profile Bravo hit weight
K_{CH}	=	6 (0.4) (200)	=	Profile Charlie hit weight
K_{AM}	=	6 (0.3) (-100)	=	Profile Alpha gross miss weight
K_{BM}	=	6 (0.3) (-100)	=	Profile Bravo gross miss weight
K_D	=	4 (0.5) (100)	=	Profile Delta hit weight
K_E	=	4 (0.5) (100)	=	Profile Echo hit weight

SCORING

Explanation of Terms

A, B, C, D, E, = Profile Designation

P_H - (subscript H) = Percent of hits (Area I & III) for Profile P (replace P by A, B, C, D, or E).

P_M - (subscript M) = Percent of gross misses (Area II) for Profile P.

P^N - (superscript N) denotes Northrop prototype.

$P_{H(i,j)}$ - (subscripts i and j) denote pilot i and all (sum) j passes (where i can equal 1, 2, 3, or 4 and j equal 1, 2, 3 for bombing or 4 for strafing).

i.e.,

$A_{M(2,3)}^F$ = Percent gross misses for pilot 2, on all 3rd passes, profile Alpha, Fairchild-Republic prototype.

$D_{H(1,2)}^N$ = Average percent hits for pilot 1, on all 2nd passes, profile Delta, Northrop prototype.

A total numerical score was computed for each contractor which defines overall weapon effectiveness. These scores were computed as an average score obtained by each pilot, each profile, and each 1st through N passes. These individual scores were computed as follows:

Bombing effectiveness score for pilot i, all j passes, profile P, Fairchild-Republic prototype:

$$BS_{P(i,j)}^F = K_{PH} \frac{P_{H(i,j)}^F}{P_{H(i,j)}^F + P_{H(i,j)}^N} + K_{PM} \frac{P_{M(i,j)}^F}{P_{M(i,j)}^F + P_{M(i,j)}^N}$$

Bombing effectiveness score for pilot i, all j passes, profile P, Northrop prototype:

$$BS_{P(i,j)}^N = K_{PH} \frac{P_{H(i,j)}^N}{P_{H(i,j)}^F + P_{H(i,j)}^N} + K_{PM} \frac{P_{M(i,j)}^N}{P_{M(i,j)}^F + P_{M(i,j)}^N}$$

There were 36 individual bombing effectiveness scores for each contractor's prototype (4 pilots x 3 profiles x 3 passes/profile).

Strafing effectiveness score for pilot i, all j passes, profile P, Fairchild-Republic prototype:

$$SS_{P(i,j)}^F = K_P \frac{P_{H(i,j)}^F}{P_{H(i,j)}^F + P_{H(i,j)}^N}$$

Strafing effectiveness score, for pilot i, all j passes, profile P, Northrop prototype:

$$SS_{P(i,j)}^N = K_P \frac{P_{H(i,j)}^N}{P_{H(i,j)}^F + P_{H(i,j)}^N}$$

There were 32 possible strafing effectiveness scores for each contractor's prototype (4 pilots x 2 profiles x 4 passes/profile).

TEST RESULTS

BOMBING

The bombing results are presented in the following format: scatter plots per profile, frequency and cumulative distribution plots per profile in both feet and mils, overall frequency and cumulative distribution plots in both feet and mils, and first, second, and third pass cumulative distribution per profile.

Specifics for each mission are presented in tabular form in the Mission Summary Section. This tabulated data shows the atmospheric conditions, release conditions, surveyed impact, pilot, profile, and other pertinent data.

Figures 2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 32, 33, 36, 37, and tables II and IV along with the bombing and strafing scores were submitted to the Source Selection Advisory Council. Table II presents the circular error average (CEA) and the circular error probable (CEP) for the three bombing profiles along with CEA and CEP for all profiles. This data represents 635 bombs and 250 strafing passes. First, second, and third pass cumulative distribution data are presented for each profile in figures 21 through 29. A comparison was made between the data from all passes for a given profile with first, second, or third pass data for that profile. The results are summarized in table III. The results show no overall significant difference in accuracy between first pass, second pass, third pass, and all pass data. The data indicates that the range patterns flown eliminated the effect of pass number on the overall accuracy, and each pass was essentially a "first pass."

STRAFING

The strafing results are presented in the following format: frequency and cumulative plots for hits on the banner and bulls per profile. A bull was a hit within a six-foot radius for profile DELTA and a three-foot radius for profile EC40. Specifics for each mission are presented in the Mission Summary section. This tabulated data shows the pilot, profile, pass, roll-in-direction, rounds fired, hits, bulls, target number, and other pertinent data. Table IV presents the average percent hits and average percent bulls for the two strafing profiles.

OPTIMUM PROFILE

Figure 38 presents the bomb impact points for the optimum weapon delivery profile along with the delivery conditions. The CEA for this profile was 44 feet. This shows an improvement of approximately three to one when compared to the overall CEA of 109 feet obtained using the procedures set up for the A-X AFPE.

BOMBING AND STRAFING EFFECTIVENESS SCORES

The numerical scores for bombing and strafing determined by the weapon delivery scoring system are 129.16 and 100.32, respectively.

Table II

A-10A BOMBING ACCURACY

Flight Profile	CEA No. (ft)/Bombs	CEP (ft)
ALPHA	138/207	114
BRAVO	102/213	93
CHARLIE	88/215	78
OVERALL	109/635	93

Table III

A-10A WEAPON DELIVERY ACCURACY BY PASS

Pass	Flight Profiles		
	ALPHA	BRAVO CEP (ft)	CHARLIE
First	108	102	69
Second	123	89	82
Third	108	89	78
Overall	114	93	78

Table IV

A-10A STRAFING ACCURACY

	Average Percent No. Hits ^a / Passes	Average Percent Bulls ^b
DELTA	18.2/124	6.38
ECHO	61.4/126	6.78

^aHit - Impact on 20 x 20 ft banner

^bBull - Impact within 3 ft radius - ECHO
6 ft radius - DELTA

MISSION SUMMARY

EXPLANATION OF TERMS

<u>Item</u>	<u>Description</u>
A-WIND	Magnitude and direction of wind at release altitude
B-WIND	of profile Alpha, Bravo, and Charlie, respectively.
C-WIND	
Weapon Type	3 - BDU-33 8 - MK-82
Data Code	A - Actual dive angle and release altitude.* B - Nominal dive angle and actual release altitude. C - Actual dive angle and nominal release altitude. D - Nominal dive angle and release altitude.

*Dive angle and release altitude were obtained from radar tracking.

PASS	OPS-NO	PROFILE	CARO- HOG	DATE DAY-MON-YR	A. NO.	MISSION CONT. PILOT NO.	FLY NO.	A-WIND MAG DIR	B-WIND MAG DIR	C-WIND MAG DIR	WEAPON TYPE	ROLL-IN- DIRECTION
	28718			13 10 72	70	2	2	12 190	02 005	02 040	3	L
								CROSS-RANGE (FT)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	RADIAL MISS (MILS)	PASS SEQ.
1	A	E	A	54	3650	3905	202 172	28.1	6.7	51.2	51.6	1 090
2	A	N	A	65	3825	4066	162 074	44.6	10.3	38.2	39.6	2 090
3	A	H	A	62	3850	4177	20 189	3.1	0.6	-4.7	4.7	3 190
4	B	S	D	45	2250	2797	157 041	-118.4	-34.0	-36.8	50.1	1 149
5	B	E	D	45	2250	2797	186 268	-185.8	-53.4	2.3	53.4	2 149
6	B	H	D	45	2250	2797	147 251	-47.8	-13.7	-49.6	51.5	3 149
7	C	H	D	25	1250	2144	70 280	68.9	18.7	5.6	19.5	1 186
8	C	S	A	33	1400	2027	86 139	-66.8	-22.7	-26.6	35.0	2 186
9	C	E	D	25	1250	2144	30 342	-9.2	-2.5	-13.3	13.5	3 186
10	A	N	A	63	4275	4605	34 285	8.7	1.7	-7.1	7.3	1 090
11	A	H	A	58	4175	4679	114 105	-110.1	-20.9	-6.3	21.9	2 090
12	A	S	A	60	3950	4352	134 063	-60.8	-12.6	-27.4	30.2	3 090
13	B	E	A	43	2250	2873	103 298	-90.9	-24.7	-16.8	29.9	1 149
14	B	N	A	41	2500	3285	239 263	-29.1	-6.7	-72.1	72.5	2 149
15	B	H	A	43	2250	2873	75 185	6.5	1.7	-26.0	26.0	3 149
16	C	S	A	35	1300	1817	95 187	94.2	37.0	6.3	37.6	1 186
17	C	E	A	27	1500	2455	115 262	-113.8	-28.3	6.5	29.0	2 186
18	C	N	A	32	1600	2361	102 225	-72.1	-20.6	-30.5	36.8	3 186
19	A	H	A	58	4150	4651	54 076	-52.3	-10.0	2.8	10.4	1 090
20	A	S	A	57	4175	4721	157 010	-154.6	-28.9	-5.7	29.5	2 090
21	A	E	A	64	4950	5296	298 347	-67.0	-11.8	-54.8	56.0	3 090
22	B	N	A	44	2700	3401	227 252	-70.1	-16.3	-63.4	65.5	1 149
23	B	H	A	41	2575	3384	138 112	-127.9	-28.7	-15.2	32.5	2 149
24	B	S	A	43	2425	3097	91 274	-6.3	-1.6	29.3	29.3	3 149

PASS	PROFILE	CPS-NO	DAY-DATE-YR		A6C	MISSION CONT. PILOT			RGT	MAG-MINR		MAG-MINR	MAG-MINR		MAG-MINR	WEAPON	DIRECTION	
			16	17	72	ALT	SLANT-RANGE	SCORE		CROSS-RANGE	DOWN-RANGE		CROSS-RANGE	DOWN-RANGE			RADIAL MISS	PASS
			HOG	DATA	OLIVE	(FT)	(FT)	MAG	ANG	(FT)	(FT)		(MILS)	(MILS)		(MILS)	SEQ.	SET.
1	A	29.3	E	D	60	4550	5014	81	312	-60.1	-54.1	-10.8	-10.8	-10.8	15.3	1	030	
2	A		N	A	65	4950	5262	285	034	236.2	159.3	42.2	30.2	30.2	51.9	2	090	
3	A		M	A	57	3800	4297	167	052	-131.5	102.8	-27.0	23.9	23.9	36.1	3	090	
4	B		S	A	36	2300	3279	87	010	-85.6	-15.1	-18.3	-4.6	-4.6	18.8	1	149	
5	B		E	A	49	2350	2785	119	192	-24.7	116.3	-7.4	41.7	41.7	42.4	2	149	
6	B		N	A	40	1900	2535	161	159	-150.3	57.6	-44.4	22.7	22.7	49.9	3	149	
7	C		M	A	24	2300	4044	276	043	-218.3	181.1	-29.2	44.7	44.7	53.4	1	186	
8	C		S	A	30	1200	1841	39	160	36.6	-13.3	12.9	-7.2	-7.2	14.8	2	186	
9	C		E	D	25	1250	2144	172	190	-29.8	169.3	-8.1	78.9	78.9	79.4	3	186	
10	A		N	A	54	3575	4163	141	131	-92.5	106.4	-19.0	25.5	25.5	31.8	1	090	
11	A		M	A	50	3900	4751	410	092	-409.7	-14.3	-70.7	-3.0	-3.0	70.8	2	090	
12	A		S	A	54	4225	4920	340	010	-334.8	-59.0	-58.4	-11.9	-11.9	59.6	3	090	
13	B		E	A	40	2175	2902	216	209	-104.7	188.9	-27.0	55.0	55.0	70.4	1	149	
14	B		N	A	43	2010	2668	199	179	-198.9	3.4	-55.8	1.3	1.3	55.8	2	149	
15	B		M	A	34	1075	1590	245	061	-214.2	118.7	-91.1	74.6	74.6	17.8	3	149	
16	C		S	A	23	1200	2165	67	124	-61.2	-27.2	-15.6	-12.5	-12.5	20.0	1	186	
17	C		E	A	27	1225	2005	132	179	2.3	131.9	0.7	65.8	65.8	65.8	2	186	
18	C		N	A	28	1200	1921	155	136	-111.4	107.6	-36.2	56.0	56.0	66.7	3	186	
19	A		M	A	48	3700	4623	265	055	-217.0	151.9	-37.5	32.8	32.8	49.9	1	090	
20	A		S	A	61	3650	3990	96	264	10.0	95.4	2.3	23.9	23.9	24.0	2	090	
21	A		E	A	56	3900	4452	61	027	27.6	-54.3	5.4	-12.2	-12.2	13.3	3	090	
22	B		N	A	42	2225	2881	147	146	-121.8	82.2	-32.6	28.5	28.5	43.3	1	149	
23	B		M	A	33	1910	2865	157	175	-151.6	40.6	-35.0	14.1	14.1	37.8	2	149	
24	B		S	A	36	2225	3172	177	334	-159.0	77.5	-35.1	24.4	24.4	42.8	3	149	

COPY AVAILABLE TO DBC DOES NOT
PERMIT FULLY LEGIBLE PRODUCTION

11

PASS	OPS-NO	DATE			A/C	MISSION CONT. PILOT			NO.	AC-119G DIR			AC-119G DIR	CROSS-RANGE (MILS)			WEAPON	DIRECTION
		DAY	MON	YR		SCORE	DOWN-RANGE (FT)	CROSS-RANGE (FT)		01	105	02		010	05	300		
PROFILE	CARD-HOG	DATA	DIVE	ALT	SLANT-RANGE (FT)	DOWN-RANGE (FT)	CROSS-RANGE (FT)	AC-119G DIR	CROSS-RANGE (MILS)	AC-119G DIR	CROSS-RANGE (MILS)	AC-119G DIR	CROSS-RANGE (MILS)	AC-119G DIR	CROSS-RANGE (MILS)	AC-119G DIR	CROSS-RANGE (MILS)	AC-119G DIR
2	A	N	A	60	4000	4407	97 166	-94.1	23.4	-19.3	5.3	20.0	2	090				
3	A	M	A	58	4300	4819	145 066	-132.4	58.9	-24.5	12.2	27.4	3	090				
5	B	E	A	48	2150	2577	105 004	7.3	-104.7	2.3	-40.6	40.7	2	149				
6	B	N	A	50	2600	3048	94 284	22.7	-91.2	6.3	-29.9	30.5	3	149				
7	C	M	A	37	1150	1555	236 088	-235.8	8.2	-12.0	5.2	12.1	1	186				
8	C	S	A	39	1250	1640	122 351	-120.4	19.0	-55.9	11.6	57.1	2	186				
9	C	E	A	38	1250	1664	119 281	-117.1	-20.6	-52.8	-12.4	54.2	3	186				
12	A	S	A	50	3825	4285	267 357	-266.6	13.9	-55.4	3.2	55.5	3	090				
13	B	E	A	45	2150	2548	75 056	7.8	-74.5	2.5	-29.2	29.3	1	149				
14	B	N	A	49	2700	3200	55 351	54.3	-8.6	14.3	-2.6	14.5	2	149				
15	B	M	A	51	2300	2668	127 116	-114.1	-55.6	-36.8	-23.8	42.3	3	149				
16	C	S	A	42	1225	1540	128 080	-22.2	-126.0	-11.4	-81.8	82.6	1	186				
17	C	E	A	30	1225	1880	145 083	143.9	-17.6	49.8	-9.3	51.7	2	186				
18	C	N	A	35	1425	1992	95 156	-86.7	38.6	-31.1	19.3	36.6	3	186				
19	A	M	A	63	3700	3986	156 107	-149.1	-45.6	-34.7	-11.4	36.5	1	090				
20	A	S	A	58	3400	3813	223 111	-218.9	-42.5	-51.2	-11.1	52.4	2	090				
21	A	E	A	62	4000	4340	160 310	-122.5	-102.8	-26.0	-23.6	35.1	3	090				
22	B	N	A	49	2550	3122	131 125	118.7	55.3	33.1	18.3	37.8	1	149				
23	B	M	A	50	2050	2403	167 106	-160.5	-46.0	-56.9	-19.1	60.1	2	149				
24	B	S	A	47	2125	2577	150 161	141.8	-48.8	45.3	-18.9	49.1	3	149				

PASS	PROF	CPS-NO	DATE DAY-MON-YR	CARD- HOG	DATA CODE	ALT (FT)	A/C NO.	MISSION CONT. PILOT NO.	SCORE MAG	DOWN-RANGE (FT)	FLY NO.	A-WIND MAG DIR	B-WIND MAG DIR	C-WIND MAG DIR	WEAPON TYPE	ROLL-IN- DIRECTION	MIL SEQ.
29347			19 10 72				7	6	F	4	2	03 305	03 295	06 265	3	L	
1	B	E	A	40	2725	3601		101	064	90.7		-44.2	19.0	-12.2		22.6	1 160
2	B	N	A	40	2150	2841		111	236	-62.0		-92.0	-16.5	-32.3		36.3	2 160
3	B	M	A	35	2130	3413		161	114	-147.0		-65.4	-34.0	-21.7		40.3	3 160
4	C	S	A	27	0875	1406		125	129	78.6		-97.1	34.7	-69.5		77.3	1 200
5	C	E	A	30	0850	1283		99	049	74.7		-64.9	38.5	-50.5		63.5	2 200
6	C	N	A	30	1200	1812		104	307	62.5		-83.0	22.8	-45.8		51.2	3 200
7	A	H	A	66	4250	4475		47	128	-37.0		-28.9	-7.8	-6.4		10.1	1 100
8	A	S	A	58	4000	4460		145	063	-65.8		-129.1	-13.2	-28.9		31.8	2 100
9	A	E	A	60	3850	4223		54	117	48.1		24.5	10.3	5.8		11.8	3 100
10	B	N	A	42	2300	2952		118	253	-34.5		-112.8	-9.1	-38.2		39.2	1 160
11	B	M	A	42	2200	2824		113	115	-102.4		-47.7	-28.2	-16.9		32.9	2 160
12	B	S	A	45	2275	2806		70	130	44.9		-53.6	12.9	-19.1		23.1	3 160
13	C	E	A	30	1075	1623		44	087	43.9		-2.3	17.9	-1.4		17.9	1 200
14	C	N	C	30	1250	1887		101	203	-92.9		-39.4	-32.6	-20.9		38.7	2 200
15	C	M	O	25	1250	2103		189	202	70.8		-175.2	20.0	-83.3		85.6	3 200
16	A	S	A	57	3900	4387		28	118	13.1		-24.7	2.6	-5.6		6.2	1 100
17	A	E	A	58	4200	4683		50	180	0.0		49.9	0.0	10.6		10.6	2 100
18	A	N	A	60	3850	4223		87	273	4.5		-86.8	0.9	-20.5		20.5	2 100
19	B	M	A	43	2350	2975		129	172	-17.9		-127.7	-4.7	-42.9		43.1	1 160
20	B	S	A	42	2200	2824		101	115	42.6		-91.5	11.7	-32.4		34.4	2 160
21	B	E	A	43	2450	3102		47	211	-24.2		40.2	-6.1	12.9		14.3	3 160
22	C	N	A	33	1600	2284		215	319	162.2		-141.0	49.7	-61.7		79.2	1 200
23	C	M	A	33	1375	1963		27	226	19.4		-18.7	6.9	-9.5		11.8	2 200
24	C	S	A	35	1350	1862		27	119	8.7		-25.5	3.4	-13.7		14.1	3 200

PASS	CPS-NO	PROFILE	CARD-NO	DATE	DAY-MON-YR	A/C	MISSION CONT. PILOT		FLY NO.	A-WIND		8-WIND		C-WIND		WEAPON TYPE	ROLL-IN-	
							NO.	SCORE		MAG	DIR	MAG	DIR	MAG	DIR		SEQ.	DIRECTION
							7.	8	F	1	19	030	05	330	04	260	3	L
							ALT (FT)	SLANT-RANGE (FT)	DOWN-RANGE (FT)	CROSS-RANGE (FT)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)
							ANG.	ANG.	ANG.	ANG.	ANG.	ANG.	ANG.	ANG.	ANG.	ANG.	ANG.	ANG.
1	A	E	A	50	4200	4607	380	203	-148.4	349.7	-29.3	75.9	81.4	1	100			
2	A	N	A	50	4300	4716	325	183	-324.5	-17.0	-62.7	-3.6	62.8	2	100			
3	A	W	A	61	4650	5361	226	164	-62.2	-217.2	-11.3	-42.9	44.3	3	100			
4	B	S	A	54	2350	2633	143	220	109.5	91.9	37.1	50.9	50.9	1	160			
5	B	E	A	46	2500	3345	173	167	38.9	168.5	10.4	55.3	56.3	2	160			
6	B	N	A	42	2450	3145	20	012	19.5	4.1	4.8	1.3	5.0	3	160			
7	C	W	A	31	1425	2111	109	098	-167.9	-15.1	-34.5	-7.1	35.2	1	200			
8	C	S	A	38	1600	2105	51	136	36.6	-35.4	13.2	-16.8	21.4	2	200			
9	C	E	A	37	1350	1803	73	065	66.1	-33.8	27.4	-17.1	32.3	3	200			
10	A	N	A	58	3450	3847	39	128	-24.0	30.7	-5.5	7.9	9.7	1	100			
11	A	W	A	59	4225	4672	141	165	-36.4	-136.1	-7.0	-29.1	29.9	2	100			
12	A	S	A	59	4850	5363	100	301	-51.5	85.7	-8.6	15.9	18.1	3	100			
13	B	E	A	46	2150	2619	94	003	4.9	-93.8	1.5	-35.8	35.8	1	160			
14	B	N	A	42	2050	2631	53	066	21.5	48.4	6.3	18.3	19.4	2	160			
15	B	W	A	48	2125	2528	127	063	-113.1	57.6	-37.5	22.7	43.9	3	160			
16	C	S	A	34	1425	1999	57	328	-48.3	30.2	-17.2	15.1	22.9	1	200			
17	C	E	A	34	1400	1964	93	114	84.9	37.8	30.8	19.2	36.3	2	200			
18	C	N	A	31	1500	2222	88	051	55.3	68.3	16.8	30.7	35.3	3	200			
19	A	W	A	61	4000	4354	137	107	-131.0	-40.0	-27.6	-9.1	29.1	1	100			
20	A	S	A	59	4475	4948	117	306	-68.7	94.6	-12.5	19.1	22.8	2	100			
21	A	E	A	64	4200	4477	43	155	18.1	38.9	3.8	8.7	9.5	3	100			
22	B	N	A	38	2250	3068	81	229	-53.1	-61.1	-12.7	-19.9	23.6	1	160			
23	B	W	A	49	2625	3089	135	179	-2.3	-134.9	-0.6	-43.6	43.6	2	160			
24	B	S	A	53	2550	2883	205	158	190.0	-76.7	58.2	-26.6	64.3	3	160			

PASS	PROFILE	OPS-NO	CARD-NO	DATE		ALT (FT)	A/C NO.	MISSION CONT. PILOT		FLY NO.	A-WIND MAG DIR	B-WIND MAG DIR	C-WIND MAG DIR	WEAPON TYPE	ROLL-IN-DIRECTION				
				DAY-MON-YR	DATA DIVE CODE ANG.			SCORE MAG ANG	DOWN-RANGE (FT)						CROSS-RANGE (FT)	RADIAL MISS (MILS)	PASS SEQ.		
29702				23	10	72	70	9	F	3	1	14	095	13	085	11	075	3	R
1	C	E	A	31	A	1100	1629	75	018	23.1	-71.3	9.6	-43.7	44.8	1	200			
2	C	S	A	36	A	1300	1764	67	142	52.7	-41.2	22.0	-23.3	32.1	2	200			
3	C	M	A	28	A	1400	2202	85	107	-81.2	-24.8	-23.4	-11.2	26.0	3	200			
4	A	N	A	67	A	4650	4869	223	153	-198.6	101.2	-30.9	20.7	44.1	1	100			
5	A	E	A	07	A	4625	4843	228	193	-51.2	222.1	-10.1	45.8	46.9	2	100			
6	A	S	A	62	A	3950	4268	89	121	-83.6	-30.4	-18.1	-7.1	19.4	3	100			
7	B	M	A	41	A	2100	2734	152	346	36.7	147.4	10.3	53.9	54.9	1	160			
8	B	N	A	50	A	2250	2620	118	325	96.6	-67.6	31.6	-25.8	40.8	2	160			
9	B	E	A	48	A	2300	2737	17	203	-6.6	15.6	-2.0	5.7	6.0	3	160			
10	C	S	A	31	A	1250	1851	160	208	141.2	75.1	51.5	40.5	65.5	1	200			
11	C	M	A	35	A	1200	1655	132	350	22.9	129.9	10.0	78.5	79.1	2	200			
12	C	N	A	35	A	1375	1896	172	319	129.8	-112.8	49.6	-59.4	77.4	3	200			
13	A	E	A	61	A	4150	4517	27	065	24.4	-11.4	4.9	-2.5	5.5	1	100			
14	A	S	A	64	A	4100	4370	99	072	-30.5	-94.1	-6.5	-21.5	22.5	2	100			
15	A	M	A	63	A	4200	4507	330	338	123.6	305.9	25.5	67.8	72.5	3	100			
17	B	E	A	43	A	2000	2532	50	340	-17.1	-46.9	-5.3	-18.5	19.3	2	160			
18	B	S	A	47	A	2200	2648	152	165	146.8	-39.3	46.0	-14.8	48.3	3	160			
19	C	M	A	37	A	1300	1736	201	344	55.4	193.2	23.8	11.2	13.7	1	200			
20	C	N	A	30	A	1350	2.39	69	255	-17.8	-66.6	-5.7	-32.6	33.1	2	200			
21	C	E	A	35	A	1100	1517	68	273	-67.9	-3.5	-32.4	-2.3	32.5	3	200			
22	A	S	A	63	A	4100	4399	86	326	-71.2	48.6	-15.1	10.9	18.6	1	160			
23	A	M	A	60	A	4225	4634	255	329	131.3	218.5	25.8	47.1	53.7	2	100			
24	A	N	A	62	A	3850	4160	115	331	100.5	-55.7	22.3	-13.4	26.3	3	100			

PASS	PROFILE	CPS-NO	DATE		A/C NO.	MISSION CONT. PILOT		FLT NO.	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN-	
			DAY-MON-YR	TIME		NO.	NO.		NO.	NO.	DIR	NO.	DIR	MAG		DIR	MAG
		29803	24 10 72		70	10	F 2	1	12	355	09	355	07	355	3	L	
			CARD-HDG	DATA DIVE	ALT	SLANT-RANGE	SCORE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	RADIAL	MISS
				CODE ANG.	(FT)	(FT)	MAG ANG	(FT)	(FT)	(MILS)	(MILS)	(MILS)	(MILS)	(MILS)	(MILS)	(MILS)	SEQ. SET.
1	A		E A 59	4125	4561	150 269	-149.9	2.6	-29.7	0.5	29.7	1	100				
2	A		N A 57	4000	4500	109 214	-90.3	-60.9	-17.8	-13.5	22.4	2	100				
3	A		M A 61	3925	4272	83 073	-79.3	24.2	-17.0	5.6	17.9	3	100				
4	B		S A 43	2130	2775	47 115	19.8	-42.5	5.4	-15.3	16.2	1	160				
5	B		E C 35	2250	3229	53 279	-52.3	-8.2	-11.2	-2.5	11.5	2	160				
6	B		N D 45	2250	2775	85 219	-66.0	-53.4	-19.2	-19.2	27.2	3	160				
7	C		M D 25	1250	2103	50 112	-46.3	-18.7	-13.0	-8.9	15.8	1	200				
8	C		S D 25	1250	2103	151 114	61.3	-137.6	17.2	-65.1	67.3	2	200				
9	C		E D 25	1250	2103	81 102	79.2	16.8	22.3	8.0	23.7	3	200				
10	A		N D 60	4550	4991	79 211	-67.7	-40.6	-12.3	-8.1	14.8	1	100				
11	A		M D 60	4550	4991	107 128	-84.3	-65.8	-15.4	-13.1	20.2	2	100				
12	A		S D 60	4550	4991	46 045	-32.5	-32.5	-5.9	-6.5	8.8	3	100				
13	B		E D 45	2250	2775	102 219	-62.7	80.3	-18.3	28.9	34.2	1	160				
14	B		N D 45	2250	2775	13 187	-12.9	-1.5	-3.7	-0.5	3.8	2	160				
15	B		M D 45	2250	2775	44 066	-40.1	17.8	-11.7	6.4	13.3	3	160				
16	C		S D 25	1250	2103	37 120	19.5	-32.0	5.2	-15.2	16.1	1	200				
17	C		E D 25	1250	2103	69 016	19.0	-66.3	5.3	-31.5	31.9	2	200				
18	C		N D 25	1250	2103	32 319	24.1	-20.9	6.8	-9.9	12.0	3	200				
19	A		M D 60	4550	4991	99 121	-84.8	-50.9	-15.4	-10.2	18.5	1	100				
20	A		S D 60	4550	4991	142 042	-105.5	-95.0	-19.2	-19.0	27.0	2	100				
21	A		E D 60	4550	4991	64 101	62.8	12.2	11.4	2.4	11.7	3	100				
22	B		N D 45	2250	2775	118 184	-117.7	-8.2	-34.3	-2.9	34.5	1	160				
23	B		M D 45	2250	2775	24 241	20.9	-11.6	6.1	-4.1	7.4	2	160				
24	B		S D 45	2250	2775	67 356	-66.8	4.6	-19.5	1.6	19.5	3	160				

PASS	PRJ FILE	OPS-NO	CARD- HDG	DATE DAY-MON-YR	ALT (FT)	A/C NO.	MISSION CONT. PILOT		DOWN-RANGE (FT)	FLY NO.	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN- DIRECTION
							NO.	SCORE MAG ANG			MAG	DIR	MAG	DIR	MAG	DIR		
		30103		27 10 '72		70	13	F	2	2	10	180	14	230	19	245	3	L
1	B	E	0	45	2250	2775	41	126	32.3	23.5	23.5	9.4	8.4	12.5	1	160		
2	B	N	A	36	2000	2620	34	248	-12.7	-31.5	-31.5	-3.2	-11.1	11.6	2	160		
3	B	W	A	42	2000	2567	16	101	-157.1	-39.5	-39.5	-47.6	-11.8	49.1	3	160		
4	C	S	A	27	1300	2090	117	078	-24.3	-114.4	-114.4	-7.2	-54.7	55.2	1	200		
5	C	E	A	20	1400	2301	16	157	13.4	-8.7	-8.7	3.5	-3.7	5.1	2	200		
6	C	N	A	26	1250	2055	126	009	124.7	17.5	17.5	36.9	8.5	37.8	3	200		
7	A	W	A	58	3850	4293	71	149	-36.5	-60.8	-60.8	-7.6	-14.1	16.1	1	100		
8	A	S	A	62	4500	4862	182	003	-179.7	-28.4	-28.4	-34.2	-5.8	34.7	2	100		
9	A	E	A	60	2050	2248	85	015	22.0	-82.1	-82.1	8.9	-36.5	37.5	3	100		
10	B	N	A	39	3000	4026	33	293	12.8	-30.3	-30.3	2.3	-7.5	7.9	1	160		
11	B	W	A	45	2100	2590	51	171	-7.9	-50.3	-50.3	-2.4	-19.4	19.6	2	160		
12	B	S	A	45	2000	2466	42	073	-12.2	-40.1	-40.1	-4.0	-16.2	16.7	3	160		
13	C	E	A	28	1400	2202	81	071	76.5	-26.3	-26.3	22.0	-11.9	25.1	1	200		
14	C	N	A	29	1500	2311	217	355	216.1	-18.9	-18.9	60.6	-8.1	61.2	2	200		
15	C	W	A	34	1275	1788	62	222	41.4	-46.0	-46.0	16.5	-25.7	30.6	3	200		
16	A	S	A	57	4150	4668	20	141	-153.2	-128.5	-128.5	-29.1	-27.5	40.1	1	100		
17	A	E	A	56	3850	4371	29	301	-24.8	-14.9	-14.9	-5.0	-2.4	6.0	2	100		
18	A	N	A	57	4000	4500	67	139	-50.5	43.9	43.9	-9.9	9.7	13.9	3	100		
19	B	W	A	45	2100	2590	128	203	50.0	-117.8	-117.8	15.6	-45.4	48.1	1	160		
20	B	S	A	44	2100	2623	56	063	-25.4	-49.8	-49.8	-7.7	-19.0	20.5	2	160		
21	S	E	A	37	2150	2980	8	192	-1.6	7.8	7.8	-0.4	2.6	2.6	3	160		
22	C	N	A	23	1200	2120	104	002	103.9	3.6	3.6	27.7	1.7	27.7	1	200		
23	C	W	A	27	1250	2009	6	271	59.9	-0	-0	18.5	0.0	18.5	2	200		
24	C	S	A	30	1200	-812	64	168	62.6	-13.3	-13.3	22.8	-7.3	24.0	3	200		

[illegible]

OPS-NO	PASS PROFILE	CARD-HOG	DATE DAY-MON-YR	ALT (FT)	A/C NO.	MISSION CONT. PILOT		DOWN-RANGE (FT)	CROSS-RANGE (FT)	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN-DIRECTION	
						NO.	SCORE MAG ANG			NO.	MAG DIR	MAG DIR	MAG DIR	MAG DIR	MAG DIR		PASS SER.	SET.
32005			15 11 72		69	16	F	4	1	20	268	19	253	17	238	3	R	
1	C	E	D	25	1250	2103	72 268	-71.9	2.5			-20.3		1.1		20.3	1	200
2	C	S	D	25	1250	2103	81 179	80.9	-1.4			22.8		-0.6		22.8	2	200
3	C	H	B	25	1250	2103	130 293	119.6	50.7			33.8		24.1		41.5	3	200
4	A	N	A	62	4250	4592	241 272	6.4	-240.8			1.6		-52.4		52.4	1	100
5	A	E	A	62	4575	4943	440 139	288.6	332.0			54.0		67.1		86.2	2	100
6	A	S	A	72	5625	5756	390 205	353.4	164.8			59.9		28.6		66.4	3	100
7	B	H	A	42	2525	3241	91 335	38.4	82.4			9.2		25.4		27.0	1	160
8	B	N	A	43	2250	2848	196 354	194.9	-20.4			54.0		-7.1		54.5	2	160
9	B	E	A	37	2275	3153	50 305	-46.9	-28.6			-9.3		-9.0		13.0	3	160
10	C	S	A	32	1550	2253	4 180	3.9	0.0			1.2		0.0		1.2	1	200
11	C	H	C	31	1250	1851	168 305	137.6	96.3			50.1		52.0		72.2	2	200
12	C	N	A	34	1325	1859	185 351	182.7	-28.9			70.0		-15.5		71.7	3	200
13	A	E	A	58	4350	4851	180 149	92.7	154.2			17.1		31.8		36.1	1	100
14	A	S	A	68	4500	4687	320 256	77.4	310.4			15.8		66.2		68.1	2	100
15	A	H	C	56	4550	5166	36 314	25.8	29.0			4.4		4.8		6.5	3	100
16	B	N	A	36	2575	3631	148 218	-116.6	-91.1			-22.7		-25.0		33.8	1	160
17	B	E	A	34	2525	3690	105 276	-104.4	-10.9			-19.3		-2.9		19.5	2	160
18	B	S	A	42	2325	2984	9 199	85.0	29.3			22.2		9.8		24.2	3	160
19	C	H	A	28	1350	2124	108 234	87.3	-63.4			26.1		-29.8		39.7	1	200
20	C	N	A	32	1450	2108	166 034	137.6	92.8			44.9		44.0		62.8	2	200
21	C	E	A	24	1525	2628	36 022	13.4	-33.3			2.9		-12.6		13.0	3	200
22	A	S	A	63	4725	5070	250 267	13.0	249.6			2.4		49.2		49.2	1	100
23	A	H	A	59	4200	4644	74 078	-72.3	15.3			-14.0		3.3		14.4	2	100
24	A	N	A	53	3975	4395	15 053	9.0	11.9			1.8		2.7		3.2	3	100

OPS-NO	DATE DAY-MON-YR	A/C NO.	MISSION CONT. PILOT	FLY NO.	A-WIND MAG DIR	B-WIND MAG DIR	C-WIND MAG DIR	WEAPON TYPE	SOIL-IN- DIRECTION				
32205	17 11 72	69	17 F 1	1	09 195	08 035	10 034	8	L				
PASS PROFILE	CARD- HDG	DATA UIVE CODE ANG.	ALT (FT)	SLANT-RANGE (FT)	SCORE MAG ANG	DOWN-RANGE (FT)	CROSS-RANGE (FT)	CROSS-RANGE (MILS)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	RADIAL MISS (MILS)	PASS SEQ.	MIL SET.
1	C	E	26	1150	1895	115 208	-53.9	101.5	-17.2	53.5	56.2	1	198
2	C	N	34	1450	2138	33 066	13.4	30.1	4.6	14.7	15.5	2	198
3	C	M	27	1525	2458	39 299	34.1	18.9	8.6	7.6	11.5	3	198
4	B	S	34	2110	3176	121 316	-86.3	63.3	-19.1	27.0	33.1	1	158
5	B	E	36	2000	2825	130 273	-129.8	-6.8	-32.5	-2.4	32.6	2	158
6	B	N	43	2025	2567	126 112	-26.1	123.2	-8.0	47.9	48.6	3	158
7	C	H	28	1025	1616	22 264	21.8	-2.2	8.5	-1.4	8.6	1	198
8	C	S	31	1000	1484	277 347	-269.8	62.3	-22.4	41.9	29.4	2	198
9	C	E	25	1000	1687	13 297	-11.5	-5.9	-4.0	-3.4	5.3	3	198

OPS-NO	PASS	PROFILE	DAY-DATE-YR			AGC	MISSION CONT. PILOT			FBI	MAG-MIN-R			MAG-MIN-R	MAG-MIN-R			WEAPON	DIRECTION	
			18	11	72	69	18	F	2	2	15	270	17	262	15	270	3			
			CARO- DATA DIVE			ALT	SLANT-RANGE	SCORE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	RADIAL MISS	PASS		
			HDC	CODE	ANG.	(FT)	(FT)	MAG	ANG	(FT)	(MILS)	(FT)	(MILS)	(MILS)	(MILS)	(MILS)	(MILS)	SEQ.		
32302																				
1	C	E	A	32	A	1125	1635	87	287	-83.1	-25.4	-34.9	38.2	-15.5	38.2	1	200			
2	C	S	A	32	A	1150	1671	80	175	79.6	-6.9	32.7	33.0	-4.1	33.0	2	200			
3	C	W	A	34	A	1300	1823	191	264	189.9	-19.9	74.2	75.0	-10.9	75.0	3	200			
4	A	N	A	62	A	3825	4133	112	203	-103.0	-43.7	-23.0	25.3	-10.5	25.3	1	100			
5	A	E	A	55	A	4250	4872	200	011	38.1	-196.3	6.8	40.8	-40.2	40.8	2	100			
6	A	S	A	57	A	4275	4803	123	95	11.7	-122.5	1.9	25.5	-25.4	25.5	3	100			
7	B	W	A	54	A	1900	2129	27	200	9.2	-25.3	3.8	12.5	-11.9	12.5	1	160			
8	B	N	A	47	A	2100	2528	160	284	38.7	-155.2	12.7	62.7	-61.4	62.7	2	160			
9	B	E	A	40	A	2000	2643	210	267	-209.7	10.9	-60.0	60.1	4.1	60.1	3	160			
10	C	S	A	34	A	1125	1578	152	208	134.2	71.3	60.6	75.6	45.2	75.6	1	200			
11	C	W	A	38	A	1375	18.9	168	288	159.7	51.9	67.1	72.9	28.6	72.9	2	200			
12	C	N	A	34	A	1250	1753	139	272	4.8	-138.9	1.9	79.2	-79.2	79.2	3	200			
13	A	E	A	58	A	4000	4460	47	272	-46.9	-1.6	-9.4	9.4	-0.3	9.4	1	100			
14	A	S	A	63	A	4175	4480	153	089	-2.6	-152.9	-0.5	34.1	-34.1	34.1	2	100			
15	A	W	D	60	A	4550	4991	77	146	-43.0	-63.8	-7.8	15.1	-12.7	15.1	3	100			
16	B	N	A	47	A	1825	2197	126	268	-4.4	-125.9	-1.6	57.3	-57.3	57.3	1	160			
17	B	E	A	45	A	2000	2465	87	286	-83.6	-23.9	-27.4	29.1	-9.7	29.1	2	160			
18	B	S	A	46	A	2000	2436	70	063	-31.7	-62.3	-10.7	27.7	-25.5	27.7	3	160			
19	C	W	A	32	A	0950	1381	75	216	44.0	-60.6	21.9	49.1	-43.9	49.1	1	200			
20	C	N	D	25	A	1250	21.3	162	264	-16.9	-161.1	-4.7	76.7	-76.5	76.7	2	200			
21	C	E	D	25	A	1250	2103	31	320	-19.9	-23.7	-5.6	12.6	-11.2	12.6	3	200			
22	A	S	A	60	A	4150	4552	108	180	107.9	0.0	21.6	21.6	8.0	21.6	1	100			
23	A	W	A	62	A	3850	4160	131	101	-128.5	-24.9	-28.6	29.2	-6.0	29.2	2	100			
24	A	N	A	62	A	3425	3701	75	155	-67.9	31.6	-16.9	19.0	8.5	19.0	3	100			

OPS-NO	DATE DAY-MON-YR	A/C NO.	MISSION CONT. PILOT NO.	FLY NO.	A-WIND MAG DIR	9-WIND MAG DIR	C-WIND MAG DIR	WEAPON TYPE	ROLL-IN- DIRECTION					
32303	18 .11 72	69	19 F	3	1 29 265	18 247	09 290	8	L					
PASS PROFILE	CARD- HOG	ALT (FT)	SLANT-RANGE (FT)	SCORE MAG ANG	DOWN-RANGE (FT)	CROSS-RANGE (FT)	CROSS-RANGE (MILS)	RADIAL MISS (MILS)	PASS SET.					
1	C	E	A	26	0950	1566	145 283	-141.2	-32.6	-54.7	-20.8	58.5	1	198
2	C	N	A	22	1225	2228	1.8 082	15.0	116.9	3.7	47.9	48.1	2	198
3	C	W	A	22	1300	2365	290 074	-278.7	79.9	-64.7	33.7	73.0	3	198
4	A	S	A	55	5050	5802	253 118	-241.6	-78.1	-36.0	-13.4	38.5	1	096
5	A	E	A	60	4450	4890	35 278	-34.6	-4.8	-6.4	-0.9	6.5	2	096
6	A	N	A	65	4450	4720	81 212	-68.6	-42.9	-13.7	-9.0	16.4	3	096
7	B	W	A	38	2100	2868	235 041	-154.1	177.3	-39.3	61.8	73.2	1	158
8	B	S	A	35	2300	3307	88 018	-83.6	-27.1	-17.5	-8.2	19.4	2	158
9	B	E	A	37	2350	3263	100 195	-25.8	96.5	-5.7	29.5	30.1	3	158

OPS-NO	DATE DAY-MON-YR	A/C NO.	MISSION CONT. PILOT		FLT NO.	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN- DIRECTION		
			NO.	NO.		MAG	DIR	MAG	DIR	MAG	DIR				
325.5	20 11 72	69	20	F	4	2	13	037	15	037	09	360	R		
PASS	PROFILE	CARD- HOG	DATA CODE	DIVE ANG.	ALT (FT)	SLANT-RANGE (FT)	SCORE MAG	ANG	DOWN-RANGE (FT)	CROSS-RANGE (FT)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	RADIAL MISS (MILS)	PASS SEQ.	MIL SET.
1	B	E	A	37	2250	3119	166	301	-142.2	-85.4	-32.9	-27.4	42.8	1	160
2	B	S	A	47	2550	3069	61	098	8.4	-6.4	2.2	-19.6	19.8	2	160
3	B	H	A	38	2350	3204	47	227	34.3	-32.0	7.8	10.0	12.7	3	160
4	C	N	C	27	1250	2003	34	228	-22.7	-25.2	-7.0	-12.5	14.4	1	200
5	C	E	A	27	1525	2451	98	242	-77.6	41.3	-19.7	16.8	25.9	2	200
6	C	S	A	31	1600	2370	130	201	121.3	46.5	34.5	19.6	39.7	3	200
7	A	H	A	57	3650	4106	116	258	113.4	-24.1	24.5	-5.8	25.2	1	100
8	A	N	A	56	3325	3775	132	214	-109.4	-73.8	-25.5	-19.5	32.1	2	100
9	A	E	A	61	3625	3976	93	136	64.6	66.8	14.8	16.8	22.4	3	100
10	B	S	A	39	2250	3019	165	137	120.6	-112.5	29.7	-37.2	47.6	1	160
11	B	H	A	42	2275	2920	56	266	55.8	-3.9	14.9	-1.3	14.9	2	160
12	B	N	A	44	2050	2561	118	326	97.8	-65.9	30.5	-25.7	39.9	3	160
13	C	E	A	31	1375	2036	89	048	66.1	-59.5	21.9	-29.2	36.5	1	200
14	C	S	A	32	1450	2108	132	199	124.8	42.9	40.7	20.3	45.5	2	200
15	C	H	A	30	1325	2001	165	252	156.9	-50.9	51.9	-25.4	57.8	3	200
16	A	N	A	58	3500	3903	100	279	15.6	-98.7	3.5	-25.3	25.5	1	100
17	A	E	A	60	4000	4387	90	270	-89.9	0.0	-18.6	0.0	18.6	2	100
18	A	S	A	63	4550	4882	120	172	118.8	-16.7	22.6	-3.4	22.9	3	100
19	B	H	A	38	2600	3545	29	124	-24.0	-16.2	-4.9	-4.5	6.7	1	160
20	B	N	A	42	2325	2984	77	255	-19.9	-74.3	-5.2	-24.9	25.4	2	160
21	B	E	A	40	2200	2907	112	027	50.8	-99.7	13.2	-34.3	36.7	3	160
22	C	S	A	31	1700	2518	68	241	34.9	58.8	9.1	23.3	25.3	1	200
23	C	H	A	28	1400	2202	147	221	96.4	-110.9	27.8	-50.3	57.5	2	200
24	C	N	A	31	1325	1962	152	327	127.4	-82.7	43.8	-42.1	60.8	3	200

PASS	CPS-NO	PROFILE	CARD- HDC	DATE		A/C NO.	MISSION CONT. NO.	PILOT	FLY NO.	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN- DIRECTION	
				DAY	MON-YR					MAG	DIR	MAG	DIR	MAG	DIR			MAG
	32548			20	11 72	70	21	F	1	2	26	022	13	034	07	040	3	R
1	B	E		45	A	1600	194	336	-78.9	-177.2	-32.4	-89.8	95.4	1	160			
2	B	S		45	A	2025	161	196	16.7	-159.1	5.4	-63.7	63.9	2	160			
3	B	M		44	A	1850	110	292	101.9	41.2	35.3	17.8	39.5	3	160			
4	C	R		29	C	1250	96	338	89.3	-35.9	29.9	-18.6	35.3	1	200			
5	C	E		25	A	1325	109	125	89.2	62.5	23.7	28.0	36.7	2	200			
6	C	S		29	A	1025	64	095	5.5	-63.7	2.2	-40.3	40.4	3	200			
7	A	M		64	A	4000	118	229	89.0	-77.4	19.5	-18.1	26.7	1	100			
8	A	N		69	A	4000	221	219	-171.7	-139.0	-39.9	-33.5	52.1	2	100			
9	A	E		59	A	3650	17	271	-169.9	-2.9	-38.0	-0.7	38.0	3	100			
10	B	S		35	A	1700	137	356	-136.6	9.5	-39.0	3.9	39.2	1	160			
11	B	M		43	A	1800	21	169	-19.8	-6.8	-6.8	-3.0	7.5	2	160			
12	B	N		38	A	1600	30	020	28.1	10.2	9.4	4.7	10.5	3	160			
13	C	E		32	A	1150	46	199	-14.9	43.4	-6.1	26.0	26.7	1	200			
14	C	S		37	A	1250	73	157	67.1	-28.5	30.1	-17.0	34.6	2	200			
15	C	M		32	A	1300	69	304	57.2	38.5	20.8	20.4	29.1	3	200			
16	A	N		63	A	3250	59	223	-43.1	-40.2	-11.5	-11.5	16.3	1	100			
17	A	E		72	A	3675	110	259	-107.9	20.9	-28.0	5.5	28.6	2	100			
18	A	S		67	A	3850	128	195	11.1	-127.5	2.6	-31.6	31.7	3	100			
19	B	M		39	A	1875	47	320	30.2	36.0	8.9	14.3	16.8	1	160			
20	B	N		44	C	2250	59	318	43.8	-39.4	12.4	-14.0	18.7	2	160			
21	B	E		40	A	1875	87	331	-42.1	-76.0	-12.8	-30.7	33.2	3	160			
22	C	S		29	A	1175	68	118	31.9	-60.0	11.4	-33.1	35.0	1	200			
23	C	M		28	A	1100	79	311	59.6	51.8	21.8	29.9	37.0	2	200			
24	C	N		31	A	1225	111	015	107.2	28.7	39.8	15.8	42.9	3	200			

PASS	PROFILE	CPS-NO	DAYBASE-YR			ACF	MISSION CONT. PILOT			RBI	MACHINE			MACHINE	MACHINE			WEAPON	DIRECTION		
			21	11	72	7.	22	F	3	2	10	061	17	080	14	081	3				
			HDC	CODE	ANG.	ALT (FT)	SCORE	ANG	DOWN-RANGE (FT)	CROSS-RANGE (FT)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)	RADIAL (MILS)	PASS	MTSS	SEQ.	MIL SET.
1	B	326.6	E	A	37	2125	2945	264	-338.1	35.5	-82.8	12.0	83.6	1	160						
2	B		N	A	43	2325	2943	208	-90.0	-47.8	-24.1	-16.2	29.1	2	160						
3	B		W	A	43	2325	2943	23	010	22.6	-1.0	7.6	7.7	3	160						
4	C		S	A	20	1325	2538	181	322	111.4	-29.3	43.8	52.7	1	200						
5	C		E	A	26	1300	2137	14	248	52.4	-36.9	24.5	44.3	2	200						
6	C		N	A	27	1450	2331	123	155	51.9	-29.7	22.2	37.1	3	200						
7	A		W	O	50	4550	4991	149	359	148.9	0.4	29.8	29.8	1	100						
8	A		S	O	62	4650	5024	163	335	68.8	-27.2	13.7	30.4	2	100						
9	A		E	O	59	4000	4423	138	211	118.2	-14.5	26.7	30.4	3	100						
10	B		N	C	44	2250	2811	55	080	54.1	2.7	19.2	19.4	1	160						
11	B		W	A	38	2450	3340	145	088	5.0	-31.8	1.5	31.8	2	160						
12	B		S	A	42	2625	3369	153	025	-64.6	-32.0	-19.1	37.3	3	160						
13	C		E	A	26	1450	2384	192	251	62.5	-46.3	26.2	53.2	1	200						
14	C		N	A	25	1450	2440	114	190	-19.7	-27.3	-8.1	28.5	2	200						
15	C		W	A	24	1325	2284	53	017	50.6	-3.9	22.1	22.5	3	200						
16	A		S	A	58	4000	4461	121	293	116.4	-9.4	24.7	26.4	1	100						
17	A		E	A	62	4300	4645	116	201	108.2	-8.2	23.3	24.7	2	100						
18	A		N	A	59	4100	4533	96	186	-10.0	-19.0	-2.2	19.1	3	100						
19	B		W	A	36	2275	3207	146	089	2.5	-32.2	0.7	32.2	1	160						
20	B		S	A	40	2450	3238	44	020	-15.0	-9.6	-4.6	10.7	2	160						
21	B		E	A	47	2525	3039	48	231	30.2	-10.1	9.9	14.2	3	160						
22	C		N	A	26	1475	2425	125	188	-17.3	-31.0	-7.1	31.8	1	200						
23	C		W	A	25	1450	2440	103	301	53.0	21.5	21.7	30.5	2	200						
24	C		S	A	23	1300	2297	116	268	115.9	0.9	50.4	50.4	3	200						

PASS	OPS-NO	DATE		A/C NO.	MISSION CONT. PILOT			FLY NO.	A-WIND			B-WIND			C-WIND			WEAPON TYPE	ROLL-IN-	
		DAY-MON-YR			NO.	SCORE MAG ANG	DOWN-RANGE (FT)		CROSS-RANGE (FT)	MAG DIR	MAG DIR	CROSS-RANGE (MILS)	MAG DIR	MAG DIR	CROSS-RANGE (MILS)	RADIAL MISS (MILS)	PASS SEQ.		IN- DIRECTION	
	32706	22 11 72	69		23	F	2		2	29	063	27	054	25	063		3		R	
1	B	E A 41	1600	2083	124 346		-30.0		-120.3		-11.0		-57.7		58.7	1	160			
2	B	S A 41	1950	2577	6 161		-2.9		-5.2		-0.8		-2.0		2.2	2	160			
3	B	M A 43	2050	2595	39 235		31.9		-22.3		9.7		-8.6		12.9	3	160			
4	C	N A 29	0925	1425	68 310		43.7		-52.0		19.8		-36.5		41.6	1	200			
5	C	E A 28	0900	1416	58 350		-10.0		-57.1		-4.5		-40.3		40.5	2	200			
6	C	S A 30	1150	1736	48 162		45.6		-14.8		17.4		-8.5		19.3	3	200			
7	A	M A 51	3425	4096	66 319		43.3		49.6		8.8		12.1		15.0	1	100			
9	A	E A 56	3500	3974	360 355		-31.3		-358.6		-6.9		-90.2		90.5	3	100			
10	B	S A 41	1925	2506	87 021		-81.2		-31.1		-24.8		-12.4		27.8	1	160			
11	B	M A 42	1925	2471	80 231		62.1		-50.3		19.5		-20.3		28.2	2	160			
12	B	N A 43	1875	2374	127 292		47.5		-117.7		15.8		-49.6		52.0	3	160			
13	C	E A 37	1150	1536	29 337		-11.3		-26.6		-5.5		-17.3		18.2	1	200			
14	C	S A 32	1100	1593	89 147		74.6		-48.4		32.1		-39.3		44.1	2	200			
15	C	M A 31	1200	1777	118 254		113.4		-32.5		43.0		-18.2		46.8	3	200			
16	A	N A 57	4050	4556	200 224		-143.8		-138.9		-28.0		-30.4		41.4	1	100			
17	A	E A 56	3600	4087	184 264		-182.9		19.2		-39.4		4.7		39.7	2	100			
18	A	S A 53	3750	4387	92 302		-48.7		78.0		-9.4		17.7		20.1	3	100			
19	M	M A 44	2000	2498	194 294		171.2		91.0		54.8		36.4		65.8	1	160			
20	B	N A 47	2250	2708	175 261		-21.3		-173.6		-6.5		-64.1		64.4	2	160			
21	B	E A 40	1750	2312	91 314		-65.4		-63.2		-21.4		-27.3		34.7	3	160			
22	C	S A 30	1100	1661	99 141		75.8		-63.6		30.2		-38.3		48.7	1	200			
23	C	M A 31	1250	1851	155 221		115.1		-103.7		41.9		-56.0		70.0	2	200			
24	C	N A 35	1250	1724	152 294		66.6		-136.6		28.0		-79.2		84.0	3	200			

PASS	PROFILE	CPS-NO	DAY DATE-YR			AOC	MISSION CONT. PILOT			NUT MACWINDR			MACWINDR			WEAPON DIRECTION		
			24	11	72		ALT (FT)	SLANT-RANGE (FT)	SCORE MAG ANG	F	1	DOWN-RANGE (FT)	CROSS-RANGE (FT)	DOWN-RANGE (MILS)	MACWINDR	CROSS-RANGE (MILS)	MACWINDR	RADIAL MISS (MILS)
32901			24	11	72	69												
1	C	E	A	34	1025	1438	77	303	-64.5	-41.9	-32.0	-29.1	43.2	1	200			
2	C	S	A	28	1275	2006	95	167	92.5	-21.3	29.3	-10.6	31.1	2	200			
3	C	H	B	25	1525	2566	100	299	87.4	48.4	20.2	18.8	27.6	3	200			
4	A	N	A	64	3450	3677	1	232	-49.8	-63.8	-12.7	-17.3	21.5	1	100			
5	A	E	A	62	4350	4700	180	230	-137.3	115.7	-27.1	24.6	36.6	2	100			
6	A	S	A	62	3950	4268	158	284	-38.2	153.3	-8.2	35.9	36.8	3	100			
7	B	H	A	53	1850	2092	122	340	41.7	114.6	17.6	54.7	57.5	1	160			
8	B	N	A	46	2375	2893	43	166	-41.7	11.4	-11.8	3.5	12.3	2	160			
9	B	E	A	47	2100	2528	27	270	-26.9	0.0	-8.8	0.0	8.8	3	160			
10	C	S	A	36	1100	1492	33	185	32.8	2.8	16.2	1.9	16.3	1	200			
11	C	H	A	39	1450	1880	55	327	29.9	46.1	12.2	24.5	27.4	2	200			
12	C	N	A	35	1350	1862	52	333	46.3	-23.6	18.0	-12.5	22.0	3	200			
13	A	E	A	66	3750	3949	123	141	77.4	95.5	18.6	24.2	30.5	1	100			
14	A	S	A	67	4000	4188	137	278	-19.0	135.6	-4.3	32.3	32.6	2	100			
15	A	H	A	66	3430	3581	137	104	-7.4	106.7	-1.9	29.8	29.8	3	100			
16	B	N	A	38	2025	2761	12	146	-9.9	6.7	-2.6	2.4	3.5	1	160			
17	B	E	A	43	2500	3165	9	278	-8.9	-1.2	-2.2	-0.3	2.2	2	160			
18	B	S	A	50	1900	2212	38	217	30.3	22.8	11.7	10.3	15.6	3	160			
19	C	H	A	37	1350	1803	43	321	27.6	32.9	11.4	18.2	21.5	1	200			
20	C	N	A	36	1350	1832	92	001	91.9	1.6	36.9	0.8	36.9	2	200			
21	C	E	A	36	1225	1662	27	171	4.2	26.6	1.8	16.0	16.1	3	200			
22	A	S	A	68	3500	3646	136	190	133.9	23.6	35.2	6.4	35.8	1	100			
23	A	H	A	62	4250	4592	94	224	65.2	-67.6	13.1	-14.7	19.7	2	100			
24	A	N	A	85	3200	3389	104	331	90.9	-50.4	25.3	-14.8	29.3	3	100			

PASS	PROFILE	OPS-NO	CARD- HDS	DATE DAY-MON-YR	A/C NO.	MISSION CONT. PILOT		FLT NO.	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN- DIRECTION	
						NO.	SCORE		DOWN-RANGE (FT)	CROSS-RANGE (FT)	MAG	ANG	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)			MAG
		32906		24 11 72	69	25	F	3	2	04	310	04	290	03	210	8	L
1	C	E	A	25	1856	60	114	54.8	24.4	17.5	13.1	21.8	1	198			
2	C	N	O	25	2109	120	149	-102.8	61.8	-28.9	29.3	41.1	2	198			
3	C	W	A	24	2117	25	202	9.3	-23.1	2.5	-10.9	11.2	3	198			
4	A	S	A	64	4125	144	262	20.0	142.5	4.2	32.3	32.6	1	096			
5	A	E	A	63	4225	12	107	11.4	3.5	2.3	0.7	2.4	2	096			
6	A	N	A	55	3775	22	213	-19.0	-10.9	-3.8	-2.5	4.5	3	096			
7	B	W	A	41	2300	16	244	14.3	-7.0	3.6	-2.3	4.3	1	158			
8	B	S	A	37	2200	92	288	-28.4	87.4	-6.6	28.6	29.4	2	158			
9	B	E	A	38	1975	46	134	33.0	31.9	8.9	11.8	14.8	3	158			

PASS	OPS-NO	DATE DAY-MON-YR	ALT (FT)	A/C NO.	MISSION CONT. PILOT NO.	DOWN-RANGE (FT)	CROSS-RANGE (FT)	A-WIND MAG DIR	B-WIND MAG DIR	C-WIND MAG DIR	WEAPON TYPE	ROLL-IN- DIRECTION
	33001	25 11 72	69	26	F	4	1	28 640	12 070	06 070	3	L
1	A	E	4000	4292	92 204	-37.4	84.0	-8.1	-19.5	21.1	1	100
2	A	N	4000	4354	124 229	-81.3	-93.5	-17.1	-21.4	27.5	2	100
3	A	M	4100	4399	216 173	-26.3	-214.3	-5.5	-48.7	49.0	3	106
4	B	S	46	2275	106 081	-16.5	-104.6	-4.9	-37.7	38.0	1	160
5	B	E	40	2250	106 284	-102.8	-25.6	-26.1	-8.6	27.5	2	166
6	B	N	39	2250	38 112	-14.2	35.2	-3.5	11.6	12.1	3	160
7	C	M	34	1500	47 060	-40.7	23.4	-13.7	11.1	17.7	1	200
8	C	S	31	1400	92 153	81.9	-41.7	26.6	-20.1	33.4	2	200
13	B	E	40	2175	39 091	38.9	0.6	10.2	0.2	10.2	1	160
14	B	N	41	2175	163 185	14.2	102.3	3.7	56.4	56.6	2	160
15	B	M	47	2100	84 348	17.4	82.1	5.7	32.5	33.0	3	160
16	C	S	35	1400	29 209	25.3	14.0	9.5	7.2	11.9	1	200
17	C	E	34	1525	63 026	27.6	-56.6	9.2	-26.4	28.0	2	200
18	C	N	32	1250	50 028	44.1	23.4	16.7	12.9	21.1	3	200
19	A	M	60	4150	37 111	-34.5	-13.2	-6.9	-2.9	7.5	1	100
20	A	S	55	4800	105 016	-100.9	-28.9	-16.0	-5.2	16.8	2	100
21	A	E	61	3950	214 137	145.9	156.5	31.1	36.3	47.9	3	100
22	B	N	41	2450	105 102	-21.8	102.7	-5.2	32.1	32.6	1	160
23	B	M	44	2450	73 346	17.6	7.8	4.6	23.1	23.5	2	160
24	B	S	44	2400	80 198	76.0	24.7	20.3	8.2	21.9	3	160

PASS	CPS-NO	PRF FILE	CARD- HDG	DATE		A/C NO.	MISSION CONT.		PILOT	FLY		A-WIND		B-WIND		C-WIND		WEAPON	ROLL-IN-	
				DAY-MON-YR			NO.	NO.		CROSS-RANGE (FT)	DOWN-RANGE (FT)	CROSS-RANGE (FT)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	DIR	DIR	CROSS-RANGE (MILS)		DIR	RADIAL (MILS)
	33003			25	11	72	69		F	2	27	32	033	16	047	09	075	0		L
1	C	E	A	30		1000	1513	109	038	67.1	-85.8			29.2		-56.7		63.8	1	198
2	C	N	A	28		1100	1735	85	070	29.0	79.8			10.6		46.0		47.2	2	198
3	C	W	A	27		1100	1773	17	053	-13.5	10.2			-4.7		5.7		7.4	3	198
4	A	S	A	57		4400	4960	77	240	38.5	66.6			6.8		13.4		15.1	1	096
5	A	E	A	57		3800	4284	180	254	-173.0	49.6			-35.8		11.5		37.6	2	096
6	A	N	A	65		3600	3819	147	213	-123.2	-80.0			-30.4		-20.9		36.9	3	096
7	B	W	A	42		18.0	2314	105	050	-80.4	67.4			-27.0		29.1		39.7	1	158
8	B	S	A	43		1975	2504	94	068	-35.2	-87.1			-11.0		-34.7		36.5	2	158
9	B	E	A	40		1625	2151	80	146	57.5	-55.5			20.2		-25.8		32.7	3	158

OPS-NO	DATE DAY-MON-YR	CARO- HDG	DATA CODE	GIVE ANG.	ALT (FT)	A/C NO.	MISSION CONT. PILOT		FLT NO.	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN- DIRECTION	
							SCORE MAG	ANG		CROSS-RANGE (FT)	DOWN-RANGE (HLS)	CROSS-RANGE (HLS)	MAG	DIR	CROSS-RANGE (HLS)			MAG
33206	27 11 72					24	28	F	1	2	34	034	35	040	22	062	8	L
PASS	PROFILE																	
1	A	E	C	68	4550	4745	148	195	-38.3	142.9	-7.7	30.1	31.1	1	096			
2	A	N	A	67	3900	4089	121	156	-110.5	49.2	-25.7	12.0	26.4	2	096			
3	A	W	A	64	3900	4163	148	113	-136.2	-57.8	-30.6	-13.8	33.6	3	096			
4	B	S	A	51	2600	3000	111	339	-103.6	39.7	-29.9	13.2	32.7	1	158			
5	B	E	A	52	1825	2085	22	191	-4.1	21.5	-1.7	10.3	10.5	2	158			
6	B	N	B	45	2050	2532	99	082	13.7	98.0	4.4	38.7	38.9	3	158			
7	A	W	A	58	3200	3575	185	074	-177.8	50.9	-44.5	14.2	46.7	1	096			
8	A	S	A	62	3275	3544	62	334	-73.7	35.9	-19.2	10.1	21.7	2	096			
9	A	E	A	74	4300	4373	107	227	-78.2	72.9	-17.5	16.6	24.2	3	096			

PASS	PROFILE	CPS-NO	DATE DAY-MON-YR	A/C NO.	MISSION CONT. NO.	PILOT	FLY		A-WIND		8-WIND		C-WIND		WEAPON TYPE	ROLL-IN- DIRECTION
							NO.	DIR	MAG	DIR	MAG	DIR	CROSS-RANGE (MILS)	CROSS-RANGE (MILS)		
		3329	27 11 72	7.	29	F	4	1	24	050	18	050	15	068	8	L
1	C	E	D	25	1250	2109	126	009	19.7	-124.4	5.5	-59.0	59.2	1	198	
2	C	N	A	27	1050	1692	58	139	-43.7	38.0	-16.0	22.4	27.6	2	198	
3	C	W	A	25	1100	1856	177	185	-176.3	15.4	-56.2	8.3	56.9	3	198	
4	A	S	A	58	4200	4693	62	353	-61.5	7.5	-11.7	1.6	11.8	1	096	
5	A	E	A	66	4475	4718	163	001	2.8	-162.9	0.5	-34.5	34.5	2	096	
6	A	N	A	63	3875	4164	172	355	171.3	-14.9	38.2	-3.6	38.4	3	096	
7	B	W	A	37	2225	3090	102	344	28.1	98.0	6.5	31.7	32.3	1	158	
8	B	S	C	38	1250	1707	42	268	1.4	41.9	0.6	24.5	24.5	2	158	
9	B	E	A	37	2025	2812	168	305	-137.6	-96.3	-35.2	-34.2	49.1	3	158	

PASS	PROFILE	OPS-NO	DAY-DATE-YR			A6C	MISSION CONT. PILOT				NO.1	NO.2				NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23	NO.24	NO.25	NO.26	NO.27	NO.28	NO.29	NO.30	F	3	DOWN-RANGE (FT)	CROSS-RANGE (FT)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	NO.1	NO.2	NO.3	NO.4	NO.5	NO.6	NO.7	NO.8	NO.9	NO.10	NO.11	NO.12	NO.13	NO.14	NO.15	NO.16	NO.17	NO.18	NO.19	NO.20	NO.21	NO.22	NO.23	NO.24	NO.25	NO.26	NO.27	NO.28	NO.29	NO.30	L																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
			28	11	72		70	30	SCORE	3		2	22	295	7																																																																		195	06	185	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

PASS	PROFILE	OPS-NO	DATE		A/C NO.	MISSION CONT.		PILOT NO.	FLT NO.		A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN-	
			DAY	MON-YR		ALT (FT)	CARD-HDG		DATA CODE	DIVE ANG.	SLANT-RANGE (FT)	SCORE MAG	ANG	DOWN-RANGE (FT)	CROSS-RANGE (FT)	MAG DIR		DIR	MAG DIR
		33406	29	11. 72	69		31	F	2	2	25	042	21	055	20	060	8		L
1	C	E	A	24	1100	1901	6	123	5.0	3.2	1.5	1.7	2.3	1	198				
2	C	N	A	29	1050	1621	82	052	50.4	64.6	20.1	39.8	44.6	2	198				
3	C	M	A	30	1225	1854	76	314	54.6	52.7	19.4	28.4	34.4	3	198				
4	A	S	A	57	3625	4086	330	294	-134.2	301.4	-29.1	73.7	79.3	1	096				
5	A	E	A	60	3225	3544	100	204	-40.6	91.3	-10.4	25.7	27.8	2	096				
6	A	N	A	61	3800	4143	37	232	-22.7	-29.1	-5.0	-7.0	8.6	3	096				
7	B	M	A	44	2150	269.	131	287	125.2	38.3	37.2	14.2	39.8	1	158				
8	B	S	A	40	1725	2283	61	356	-60.8	4.2	-20.1	1.8	20.2	2	158				
9	B	E	A	39	1625	2184	88	255	-85.1	22.7	-28.9	10.4	30.7	3	158				

OPS-NO	DAY-MON-YR	AOC	MISSION CONT. PILOT	RBT	HAC-MINR	HAC-MINR	HAC-MINR	HAC-MINR	WEAPON	DIRECTION		
PASS PROFILE	CARD-HDG	DATA OIVE CODE ANG.	ALT (FT)	SLANT-RANGE (FT)	SCORE MAG ANG	DOWN-RANGE (FT)	CROSS-RANGE (FT)	DOWN-RANGE (MILS)	CROSS-RANGE (MILS)	RADIAL MISS (MILS)	PASS SEQ.	MIL SET.
33410	29 11 72	69	32 F 4	2 18 065	18 056	17 065	8	L				
1	C	E	27	1250	2014	147 291	-137.2	-52.6	-42.2	-26.1	49.6	1 198
2	C	N	30	1125	1703	146 050	93.8	111.8	36.4	65.6	75.0	2 198
3	C	H	25	1250	2109	17 330	8.5	14.7	2.3	6.9	7.3	3 198
4	A	S	62	4025	4355	122 140	93.4	-78.4	19.8	-18.0	26.7	1 096
5	A	E	56	3450	3925	138 067	127.0	-53.9	28.4	-13.7	31.5	2 096
6	A	N	61	4550	4961	61 358	60.9	-2.1	11.2	-0.4	11.2	3 096
7	B	M	44	2425	3034	118 285	113.9	30.5	30.0	10.0	31.6	1 158
8	B	S	41	2625	3424	98 289	-31.9	92.6	-7.1	27.0	27.9	2 158
9	B	E	40	2175	2879	120 096	119.3	12.5	31.3	4.3	31.6	3 158

PASS	PROFILE	OPS-NO	CARD-HOG	DATE DAY-MON-YR	A/C NO.	MISSION CONT. NO.	PILOT	FLT NO.	A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN-DIRECTION	
									MAG	DIR	MAG	DIR	MAG	DIR			MAG
1	A	33505	E	30 11 72	69	33	F	3	1	21	062	16	068	07	064	3	L
2	A		N														
3	A		H														
4	B		S														
5	B		E														
6	B		N														
7	C		H														
8	C		S														
9	C		E														
10	A		N														
11	A		H														
12	A		S														
13	B		E														
14	B		N														
15	B		H														
16	C		S														
17	C		E														
18	C		N														
19	A		H														
20	A		S														
21	A		E														
22	B		N														
23	B		H														
24	B		S														

COPY AVAILABLE TO DDC DOES NOT
PERMIT FULLY LEGIBLE PRODUCTION

OPS-NO	PASS	PROFILE	DAY-DATE-YR		A6C	MISSION CONT. PILOT				NO. MAG-MINR				MAG-MINR				WEAPON		DIRECTION	
			1	12		72	DATA	DIVE	ALT	SLANT-RANGE	SCORE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	RADIAL MISS	PASS	SEQ.	SET.
			HOG	CODE	ANG.	(FT)	(FT)	(FT)	MAG	ANG	(FT)	(MILS)	(MILS)	(MILS)	(MILS)	(MILS)	(MILS)				
33605	1	C	E	0	25	1250	2103	61	041	40.0	-46.0	11.3	-21.8	24.6	1	200					
	2	C	N	0	25	1250	2103	25	281	4.7	-24.5	1.3	-11.6	11.7	2	200					
	3	C	W	A	28	1225	1927	84	025	-35.5	76.1	-11.7	39.4	41.1	3	200					
	4	A	S	A	59	4100	4533	154	012	-150.6	-32.0	-30.0	-7.0	30.8	1	100					
	5	A	E	A	59	3975	4395	250	278	-247.5	-34.7	-50.9	-7.9	51.5	2	100					
	6	A	N	C	58	4550	5074	121	270	0.0	-120.9	0.0	-23.8	23.8	3	100					
	7	B	W	A	45	2300	2836	35	215	20.0	-28.6	5.7	-10.1	11.6	1	160					
	8	B	S	A	44	2275	2842	72	016	-69.2	-19.8	-19.4	-6.9	20.7	2	160					
	9	B	E	A	43	2175	2753	128	333	-58.1	-114.0	-16.6	-41.4	44.6	3	160					
	10	C	N	A	28	1375	2163	16	310	10.2	-12.2	3.0	-5.6	6.4	1	200					
	11	C	W	A	31	1325	1982	54	306	43.6	31.7	15.0	16.1	22.0	2	200					
	12	C	S	A	28	1250	1966	57	230	36.6	43.6	11.8	22.1	25.1	3	200					
	13	A	E	A	62	4250	4592	111	030	55.5	-96.1	11.1	-20.9	23.7	1	100					
	14	A	N	A	55	3975	4556	109	141	-84.7	68.5	-16.2	15.0	22.1	2	160					
	15	A	W	A	57	4325	4865	112	096	-111.3	-11.7	-20.3	-2.4	20.4	3	100					
	16	B	S	A	41	2100	2734	12	149	10.2	-6.1	2.8	-2.2	3.6	1	160					
	17	B	E	A	46	2000	2436	59	257	-57.4	13.2	-19.3	5.4	20.1	2	160					
	18	B	N	A	43	2225	2817	57	295	24.0	-51.6	6.7	-18.3	19.5	3	160					
	19	C	W	A	29	1300	2033	44	324	25.8	35.5	8.3	17.7	19.6	1	200					
	20	C	S	A	27	1200	1929	29	244	12.7	26.0	4.0	13.5	14.1	2	200					
	21	C	E	A	25	1350	2271	57	273	-56.9	-2.9	-14.8	-1.3	14.9	3	200					
	22	A	N	A	58	3550	3958	80	324	64.7	-47.0	14.6	-11.8	18.8	1	100					
	23	A	W	A	57	3950	4443	79	041	-51.8	59.6	-10.3	13.4	16.9	2	100					
	24	A	S	A	57	4000	4500	208	010	-204.8	-36.1	-40.4	-8.0	41.2	3	100					

PASS	CPS-NO	PROFILE	DATE			A/C NO.	MISSION CONT.			PILOT	FLY NO.	A-WIND			B-WIND			C-WIND	WEAPON TYPE	ROLL-IN-DIRECTION	
			DAY	MON	YR		SCORE	ANG	CROSS-RANGE			DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE	DOWN-RANGE	CROSS-RANGE			DOWN-RANGE	RADIAL
		CARD-NOG	DATA	QIVE	ALT	SLANT-RANGE															
			CODE	ANG.	(FT)	(FT)	MAG	ANG	(FT)												
1	C	E	A	27	0900	1447	35	127	27.9		21.0	12.0				14.5	18.8	1	200		
2	C	N	A	30	1325	2001	30	032	25.4		15.8	8.4				7.9	11.5	2	200		
3	C	W	A	33	1175	1677	37	215	21.2		-30.3	8.8				-18.0	20.1	3	200		
4	A	S	A	40	3625	3976	109	067	-42.5		-100.3	-9.7				-25.2	27.0	1	100		
5	A	E	A	63	4175	4480	37	083	36.7		-4.5	7.6				-1.2	7.7	2	100		
6	A	N	A	60	4075	4470	106	087	5.5		105.8	1.1				23.6	23.7	3	100		
7	B	W	A	39	2325	3120	39	185	4.0		-38.7	0.9				-12.4	12.4	1	160		
8	B	S	A	42	2100	2695	117	201	109.2		41.9	31.5				15.5	35.1	2	160		
9	B	E	A	39	2375	3238	108	217	-64.9		86.2	-14.7				26.6	30.4	3	160		
10	C	N	A	28	1375	2163	65	166	-63.0		15.7	-18.5				7.2	19.9	1	200		
11	C	W	A	33	1450	2070	84	231	65.2		-52.8	22.0				-25.5	33.7	2	200		
12	C	S	A	32	1350	1752	22	289	-7.1		24.8	-2.5				10.5	10.8	3	200		
13	A	E	A	60	3950	4332	49	310	-37.5		-31.4	-7.8				-7.2	10.7	1	100		
14	A	N	A	58	175	4555	60	202	-55.6		-22.4	-10.7				-4.8	11.7	2	100		
15	A	W	B	60	3900	4278	63	018	-19.4		59.9	-4.1				14.0	14.6	3	100		
16	B	S	A	40	2350	3105	70	295	-29.5		63.4	-7.2				20.4	21.6	1	160		
17	B	E	A	40	2150	2841	73	208	-34.2		64.4	-9.1				22.6	24.4	2	160		
18	B	N	A	44	2200	2748	42	346	40.7		-10.1	11.8				-3.6	12.4	3	160		
19	C	W	A	32	1400	2035	46	177	-2.4		-45.9	-0.8				-22.5	22.5	1	200		
20	C	S	A	30	1250	1887	50	193	48.7		11.2	17.0				5.9	18.0	2	200		
21	C	E	A	30	1350	2039	13	217	-7.8		10.3	-2.5				5.0	5.6	3	200		
22	A	N	A	61	4375	4762	30	119	-14.5		26.2	-2.8				5.5	6.1	1	100		
23	A	W	A	57	3850	4331	61	355	5.3		60.7	1.0				14.0	14.0	2	100		
24	A	S	A	58	3950	4434	36	378	-7.4		-35.2	-1.5				-7.9	8.1	3	100		

OPS-NO	DATE			A/C NO.	MISSION CONT. PILOT		FLT A-WIND		B-WIND		C-WIND		WEAPON TYPE	ROLL-IN-DIRECTION			
	DAY-MON-YR	2	12		72	NO.	SCORE	SLANT-RANGE (FT)	ALT (FT)	DOWN-RANGE (FT)	CROSS-RANGE (MILS)	MAG		DIR	CROSS-RANGE (MILS)	MAG	DIR
33701	33701	2	12	72	70	36	F	1	1	32	288	24	278	14	265	3	L
PASS	PROFILE	CARD-HDG	DATA	DIVE	ALT	SLANT-RANGE (FT)	SCORE	DOWN-RANGE (FT)	CROSS-RANGE (FT)	A-WIND	DOWN-RANGE (MILS)	B-WIND	CROSS-RANGE (MILS)	C-WIND	RADIAL MISS (MILS)	PASS	MIL SET.
1	C	E	A	30	0900	1353	23 197	-6.7	21.9	-3.2	16.1	16.5	1	200			
2	C	N	A	25	0800	1346	21 298	9.8	-18.5	4.3	-13.7	14.4	2	200			
3	C	W	A	30	0825	1246	51 221	33.4	-38.4	17.7	-30.8	35.6	3	200			
4	A	S	A	62	3450	3723	183 077	-41.1	-178.3	-10.2	-47.8	48.9	1	100			
5	A	E	A	56	3350	38.3	85 263	-84.3	10.3	-19.5	2.7	19.7	2	100			
6	A	N	A	62	3450	3728	118 141	-91.7	74.2	-22.7	19.9	30.2	3	100			
7	B	W	A	4	1550	2.48	124 15	-94.9	79.7	-35.3	38.9	52.3	1	160			
8	B	S	A	44	2050	2561	95 053	-57.1	-75.8	-17.8	-29.6	34.5	2	160			
9	B	E	A	37	1900	2633	136 303	-114.0	-74.0	-31.2	-28.1	42.3	3	160			
10	C	N	A	28	1125	1770	85 053	51.1	67.8	18.3	38.3	42.5	1	200			
11	C	W	A	30	0900	1353	67 252	63.7	-20.7	31.0	-15.2	34.5	2	200			
12	C	S	A	31	1125	1666	48 174	47.7	-5.0	19.3	-3.0	19.5	3	200			
13	A	E	A	56	3550	4030	62 326	-34.6	-51.3	-7.5	-12.7	14.8	1	100			
14	A	N	A	58	3350	3735	132 157	-121.5	51.5	-29.1	13.8	32.2	2	100			
15	A	W	A	62	3300	3566	229 056	-189.8	128.0	-49.2	35.9	60.9	3	100			
16	B	S	A	41	2175	2832	79 009	-78.0	-12.3	-21.1	-4.3	21.6	1	160			
17	B	E	A	35	2100	3013	136 300	-117.7	-67.9	-27.2	-22.5	35.3	2	160			
18	B	N	A	39	1900	2550	60 138	-44.5	40.1	-13.0	15.7	20.4	3	16			
19	C	W	A	33	1000	1427	86 085	-85.6	7.4	-42.0	5.2	42.3	1	200			
20	C	S	A	29	1000	1541	42 180	41.9	0.0	17.6	0.0	17.6	2	200			
21	C	E	A	27	11.1	1768	8. 134	57.5	55.5	20.2	31.4	37.3	3	200			
22	A	N	A	69	3650	3785	169 036	136.7	99.3	34.8	26.2	43.6	1	100			
23	A	W	A	65	3650	3866	204 045	-144.2	144.2	-35.2	37.3	51.3	2	100			
24	A	S	A	61	3550	3864	67 006	-66.6	-7.0	-15.8	-1.8	15.9	3	100			

OPS-NO	A/C NO.	MISSION NO.	CJNT.	PILOT	ELI. NO					
28516	70	1	F	2	1					
PASS	PROFILE	ROLL-IN-DIRECTION	MTL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
2	D	L	000	12	52	0	0	0.00	0.00	0.00
3	D	L	000	13	61	0	0	0.00	0.00	0.00
4	D	L	000	14	61	12	4	19.67	6.55	33.33
5	E	R	006	1	62	10	2	16.12	3.22	20.00
6	E	R	006	2	61	47	4	77.04	6.55	8.51
7	E	R	006	3	61	43	3	76.49	4.91	6.97

2

OPS-NO	A/C NO.	MISSION NO.	CGNT.	PILOT	FLT. NO.					
28718	70	2	F	4	2					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
2	D	L	000	19	62	12	5	19.35	8.06	41.66
3	D	L	000	18	61	8	3	13.11	4.91	37.50
4	D	L	000	17	61	0	0	0.00	0.00	0.00
5	E	R	006	10	61	10	0	16.39	0.00	0.00
6	E	R	006	9	60	0	0	0.00	0.00	0.00
7	E	R	006	8	61	61	4	100.00	6.55	6.55
8	E	R	006	7	61	57	3	93.44	4.91	5.26

1

2

OPS-NO. A/C NO. MISSION NO. CONT. PILOT FLI. NO.

29202 70 5 1 2

PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
1	D	R	000	10	61	0	0	0.00	0.00	0.00
2	D	R	000	9	66	20	0	30.30	1.00	0.00
3	D	R	000	8	62	0	0	0.00	0.00	0.00
4	D	R	000	7	59	10	4	16.94	6.77	40.00
5	E	L	006	20	61	2	0	3.27	0.00	0.00
6	E	L	006	19	62	34	1	54.83	1.61	2.94
7	E	L	006	18	61	24	4	39.34	6.55	16.66
8	E	L	006	17	61	16	0	26.22	0.00	0.00

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO.					
29347	70	6	F	4	2					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
1	D	L	000	20	62	0	0	0.00	0.00	0.00
2	D	L	000	19	62	0	0	0.00	0.00	0.00
3	D	L	000	18	61	38	20	62.29	32.78	52.63
4	D	L	000	17	62	1	0	1.61	0.00	0.00
5	E	R	006	10	61	10	0	16.39	0.00	0.00
6	E	R	006	9	61	38	7	62.29	11.47	18.42
7	E	R	006	8	62	14	0	22.58	0.00	0.00
8	E	P	006	7	60	3	0	5.00	0.00	0.00

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
29702	70	9	F	3	1											
1	0	L	000	11	60	9	1	15.00	1.66	11.11						
2	0	L	000	12	60	0	0	0.00	0.00	0.00						
3	0	L	000	13	60	5	1	8.33	1.66	20.00						
4	0	L	000	14	62	12	5	19.35	8.06	41.66						
5	E	R	006	1	61	60	22	93.36	36.06	36.66						
6	E	R	006	2	61	17	3	27.86	4.91	17.64						
7	E	R	006	3	62	59	9	95.16	14.51	15.25						
8	E	R	006	4	60	32	0	53.33	0.00	0.00						

OPS-NO	A/C NO.	MISSION NO.	CJNT.	PILOT	FLY. NO.					
29803	70	10	F	2	1					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
1	D	L	000	11	61	0	0	0.00	0.00	0.00
2	D	L	000	12	60	0	0	0.00	0.00	0.00
3	D	L	000	13	61	1	0	1.63	0.00	0.00
4	D	L	000	14	61	1	0	1.63	0.00	0.00
5	E	R	006	1	61	56	2	91.80	3.27	3.57
7	E	R	006	3	61	31	3	50.01	4.91	9.67
8	E	R	006	4	61	60	0	98.36	0.00	0.00

88

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO.	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
30103	70	13	F	2	2											
1	0	L	000	20	61	20	11	32.78	18.03	55.00						
2	0	L	000	19	61	14	6	22.95	9.83	42.85						
3	0	L	000	18	62	0	0	0.00	0.00	0.00						
4	0	L	000	17	61	0	0	0.00	0.00	0.00						
5	E	R	006	10	61	51	4	83.60	6.55	7.84						
6	E	R	006	9	61	7	1	11.47	1.63	14.28						
7	E	R	006	8	61	43	5	70.49	8.19	11.62						
8	E	R	006	7	61	61	8	100.00	13.11	13.11						

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	POUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
30292	7C	14	F	1	2											
1	D	L	000	62	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	D	L	000	62	1	0	1	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	D	L	000	62	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	D	L	000	62	39	16	62.90	25.80	41.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	E	R	006	61	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	E	R	006	61	11	9	18.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	E	R	006	62	3	0	4.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	E	R	006	61	43	2	70.49	3.27	4.65							

PASS	OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
	36532	69	15	F	3	2					
	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED						
3	D	R	000	8	62	0	0	0.00	0.00	0.00	0.00
4	D	R	000	7	62	0	0	0.00	0.00	0.00	0.00
5	E	L	006	20	62	54	9	87.09	14.51	16.66	16.66
6	E	L	006	19	62	43	3	69.35	4.83	6.97	6.97
7	E	L	006	18	64	53	9	82.81	14.06	16.98	16.98
8	E	L	006	17	61	45	1	73.77	1.63	2.22	2.22

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
32305	69	16	F	4	1											
1	D						R		000	1	62	42	16	67.74	25.80	38.09
2	D						R		000	2	59	21	10	35.59	16.94	47.61
3	D						R		000	3	60	7	4	11.66	6.66	57.14
4	D						R		000	4	60	16	4	26.66	6.66	25.00
5	E						L		006	11	60	55	5	91.66	8.33	9.09
6	E						L		006	12	60	56	6	93.33	10.00	10.71
7	E						L		006	13	59	39	1	66.10	1.69	2.56
8	E						L		006	14	60	45	6	75.00	10.00	13.33

PASS	OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
	32205	59	17	F	1	1					
	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED						
1	D	R	300	1	60		8	4	13.33	6.66	50.00
2	D	R	600	2	60		0	0	0.00	0.00	0.00
3	D	R	000	3	60		5	1	8.33	1.66	20.00
4	D	R	000	4	60		0	0	0.00	0.00	0.00
5	E	L	006	11	60		47	6	78.33	10.00	12.76
6	E	L	006	12	60		5	0	8.33	0.00	0.00
7	E	L	006	13	60		57	3	95.00	5.00	5.26
8	E	L	006	14	59		29	3	49.15	5.08	10.34

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLI. NO.					
32302	69	18	F	2	2					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
1	D	R	000	10	60	0	0	0.00	9.00	0.00
2	D	R	000	9	60	2	1	3.33	1.66	50.00
3	D	R	000	8	60	4	1	6.66	1.66	25.00
4	D	R	000	7	60	5	2	8.33	3.33	40.00
5	E	L	006	20	60	45	2	75.00	3.33	4.44
6	E	L	906	19	60	60	10	100.00	16.66	16.66
7	E	L	306	18	59	34	4	57.62	6.77	11.76
8	E	L	506	17	59	54	18	91.52	30.50	33.33

8

OPS-NO	A/C NO.	MISSION NO.	CCNT.	PILOT	FLT. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
32303	69	19	F	3	1	0	0	0.00	0.00	0.00
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	ROUNDS FIRED						
1	D	R	000	60						
2	D	R	000	60						
3	D	R	000	61						
4	D	R	000	59						
5	E	L	006	59						
6	E	L	006	60						
7	E	L	005	59						
8	E	L	006	60						

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
32505	59	20	F	4	2											
1	D						L	000	20	61	0	0	0.00	0.00	0.00	0.00
2	O						L	000	19	60	40	18	66.66	30.00	45.00	45.00
3	D						L	000	18	60	38	17	63.33	28.33	44.73	44.73
4	O						L	000	17	62	38	7	61.29	11.29	18.42	18.42
5	E						R	006	10	60	0	0	0.00	0.00	0.00	0.00
6	E						R	006	9	60	53	7	88.33	11.66	13.20	13.20
7	F						R	006	8	59	53	5	89.83	8.47	9.43	9.43
8	E						R	006	7	54	57	16	96.27	27.58	28.07	28.07

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
32548	70	21	F	1	2											
1	D						L	300		20	62	6	0	0.00	0.00	0.00
2	D						L	000		19	62	9	5	14.51	8.06	55.55
3	D						L	000		18	62	14	1	22.58	1.61	7.14
4	D						L	000		17	62	0	0	0.00	0.00	0.00
5	E						R	006		13	62	28	4	45.16	6.45	14.28
6	E						R	006		9	62	8	0	12.90	0.00	0.00
7	E						R	006		8	62	2	0	3.22	0.00	0.00
8	E						R	006		7	60	60	8	100.00	13.33	13.33

OPS-NO	A/C NO.	MISSION NO.	CCNT.	PILOT	FLI. NO	PERCENT BULLS	PERCENT BULLS	PERCENT BULLS
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	REL TO HITS
32606	70	22	F	3	2			
1	D	L	000	20	61	0	0	0.00
2	D	L	300	19	62	11	1	9.09
3	D	L	600	18	62	28	9	32.14
4	D	L	000	17	61	2	0	0.00
5	F	R	006	19	60	26	0	0.00
6	E	R	006	9	61	61	16	26.22
7	E	R	006	8	60	30	0	0.00
8	E	R	006	7	61	43	3	6.97

88

OPS-NO	A/C NO.	MISSION NO.	CGMT.	PILOT	FLT. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
32706	59	23	F	2	2											
1	0	L	000	20	59	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0	L	000	19	59	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0	L	000	18	59	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0	L	000	17	60	0	0	5	15.00	8.33	55.55	15.00	8.33	55.55	55.55	55.55
5	0	R	006	10	60	17	0	0	28.33	0.00	0.00	28.33	0.00	0.00	0.00	0.00
6	0	R	006	9	60	13	0	0	21.66	0.00	0.00	21.66	0.00	0.00	0.00	0.00
7	0	R	006	8	60	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0	R	006	7	60	44	12	12	73.33	20.00	27.27	73.33	20.00	27.27	27.27	27.27

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO.	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
32901	59	24	F	1	1											
1	D	L	000	11	60	10	3	16.66	5.00	30.00						
2	D	L	000	12	60	32	17	53.33	21.66	40.62						
3	D	L	000	13	57	26	10	45.61	17.54	38.46						
4	D	L	000	14	50	27	1	45.00	1.66	3.70						
5	E	R	006	1	59	48	8	81.35	13.55	16.66						
6	E	R	006	2	60	21	0	35.00	0.00	0.00						
7	E	R	006	3	60	52	4	86.66	6.66	7.69						
8	E	R	006	4	60	43	0	71.66	0.00	0.00						

52

PASS	OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
	32956	59	25	F	3	2					
	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	POUNDS FIRED						
1	D	L	000	29	59		0	5	0.00	0.00	0.00
2	D	L	000	19	60		2	0	3.33	0.00	0.00
3	D	L	000	18	60		6	1	10.00	1.66	16.66
4	D	L	000	17	59		45	25	76.27	42.37	55.55
5	E	R	006	10	59		30	0	50.84	0.00	0.00
6	E	R	006	9	59		42	3	71.18	5.06	7.14
7	E	R	006	8	59		46	2	77.96	3.38	4.34
8	E	P	006	7	59		48	4	81.35	6.77	8.33

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
33001	59	26	F	4	1					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	ROUNDS FIRED						
1	0	L	000	59	17	3	28.91	5.68	17.64	
2	0	L	000	59	43	13	72.88	22.93	30.23	
3	0	L	000	59	5	0	8.47	0.00	0.00	
4	0	L	000	59	8	1	13.55	1.69	12.50	
5	E	R	006	59	40	1	67.79	1.69	2.50	
6	E	R	006	59	56	6	94.91	10.16	10.71	
7	E	R	006	58	50	8	86.20	13.79	16.00	
8	E	R	006	59	48	1	81.35	1.69	2.08	

2

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
33003	59	27	F	2	1											
1	0	L	000	11	59	20	8	33.89	13.55	40.00						
2	0	L	000	12	59	15	5	25.42	8.47	33.33						
3	0	L	000	13	59	28	4	47.45	6.77	14.28						
4	0	L	000	14	59	27	9	45.76	15.25	33.33						
5	E	R	006	1	58	41	8	70.68	13.79	19.51						
6	E	R	006	2	59	53	6	89.83	10.16	11.32						
7	E	R	006	3	59	48	8	81.35	13.55	16.66						
8	E	R	006	4	59	55	16	93.22	27.11	29.09						

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
33206	69	28	F	1	2											
1	D	L							300	20	60	0	0	0.00	0.00	3.00
2	D	L						000		19	59	14	3	23.72	5.38	21.42
3	D	L						000		18	60	20	6	33.33	10.00	30.00
4	D	L						000		17	60	14	5	23.33	8.33	35.71
5	E	R						006		10	59	52	5	88.13	8.47	9.61
6	E	R						006		9	59	51	13	86.44	22.03	25.49
7	C	R						006		8	59	36	2	61.01	3.38	5.55
8	E	R						006		7	60	55	12	91.66	20.00	21.81

PASS	OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
	33269	70	29	F	4	1					
	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED						
1	0	R	000	1	61	0	0	0	0.00	0.00	0.00
2	0	R	000	2	61	44	20	72.13	32.78	45.45	
3	0	R	000	3	61	0	0	0.00	0.00	0.00	
4	0	R	000	4	61	0	0	0.00	0.00	0.00	
5	E	L	006	11	61	40	4	65.57	6.55	19.00	
6	E	L	006	12	60	0	0	0.00	0.00	0.00	
7	E	L	006	13	60	19	0	31.66	0.00	0.00	
8	E	L	006	14	60	4	0	6.66	0.00	0.00	

OP 5-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
33326	75	35	F	3	2					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
1	D	R	00	11	60	14	0	23.33	0.00	0.00
2	D	R	00	9	60	2	0	3.33	0.00	0.00
3	Q	R	00	8	60	7	1	11.66	1.66	14.28
4	D	R	00	7	60	31	9	51.66	15.00	29.03
5	E	L	05	30	60	50	0	83.33	0.00	0.00
6	F	L	06	13	61	60	10	98.36	16.39	16.66
7	E	L	06	10	59	56	4	94.91	6.77	7.14
8	E	L	06	17	60	59	12	98.33	20.00	20.33

PASS	OPS-NO	A/C NO.	MISSION NO.	COHT.	PILOT	FLY. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
	334J6	59	31	5	2	2					
	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED						
1	D	R	000	10	59	0	0	0	0.00	0.00	0.00
2	D	R	000	9	60	33	14	55.00	23.33	42.42	
3	D	R	000	8	59	0	0	0.00	0.00	0.00	
4	D	R	000	7	60	3	0	5.00	0.00	0.00	
5	E	L	006	20	59	4	0	6.77	0.00	0.00	
6	E	L	006	19	59	36	3	61.01	5.08	8.33	
7	E	L	006	18	59	57	9	96.61	15.25	15.78	
8	E	L	006	17	58	40	1	68.96	1.72	2.50	

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
33410	59	32	F	4	2					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS	
1	D	R	000	59	0	0	0.00	9.00	0.00	
2	D	R	000	59	4	0	6.77	0.00	0.00	
3	D	R	000	60	8	0	13.33	0.00	0.00	
4	D	R	000	59	20	3	33.89	13.55	40.00	
5	E	L	006	59	22	0	37.28	0.00	0.00	
6	E	L	006	59	14	0	23.72	0.00	0.00	
7	E	L	006	59	43	6	72.88	10.16	13.95	
8	E	L	006	59	54	13	91.52	22.03	24.07	

PASS	OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLI. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
	33505	59	33	F	3	1					
	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED						
1	D	R	000	1	59	0	0	0.00	0.00	0.00	
2	U	R	000	2	59	6	2	10.16	3.38	33.33	
3	D	R	000	3	59	0	0	0.00	0.00	0.00	
4	D	R	000	4	60	1	0	1.66	0.00	0.00	
5	E	L	006	11	59	29	0	49.15	0.00	0.00	
6	E	L	006	12	59	8	0	13.55	0.00	0.00	
7	E	L	006	13	58	32	3	55.17	5.17	9.37	
8	E	L	006	14	59	25	0	42.37	0.00	0.00	

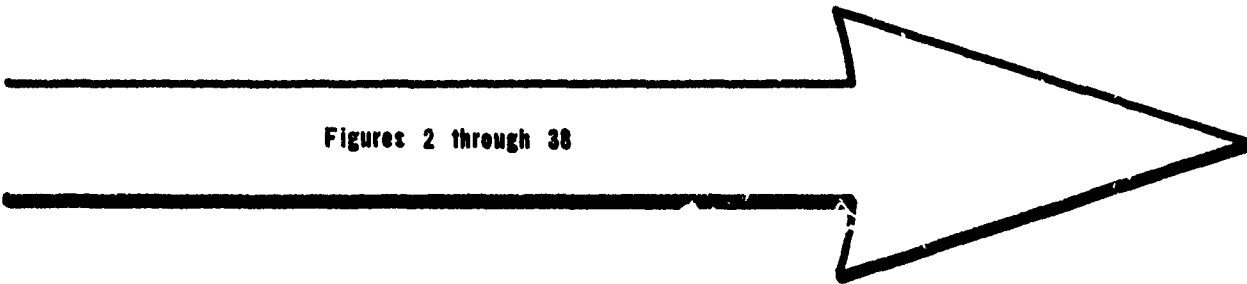
OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLT. NO.					
33605	69	34	F	2	1					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
1	0	R	000	1	59	0	9	0.00	0.00	0.00
2	0	R	000	2	60	44	18	73.33	30.00	40.90
3	0	R	000	3	59	31	16	52.54	27.11	51.61
4	0	R	000	4	59	34	16	57.62	27.11	47.05
5	E	L	006	11	58	44	9	75.86	0.00	0.00
6	E	L	006	12	59	43	2	72.88	3.38	4.65
7	E	L	006	13	59	53	1	98.30	1.69	1.72
8	E	L	006	14	60	47	4	78.33	6.66	8.51

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLY. NO	PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	TARGET NO.	ROUNDS FIRED	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
33659	69	35	F	4	1											
1	D			R	000	1	59	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	D			R	100	2	59	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	D			R	000	3	60	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	D			R	000	4	59	40	16	67.79	27.11	40.00	40.00	40.00	40.00	40.00
5	E			L	006	11	58	34	1	58.62	1.72	2.94	2.94	2.94	2.94	2.94
6	E			L	006	12	59	55	11	93.22	18.64	20.00	20.00	20.00	20.00	20.00
7	E			L	006	13	53	46	2	79.31	3.44	4.34	4.34	4.34	4.34	4.34
8	E			L	006	14	59	57	23	96.61	38.98	40.35	40.35	40.35	40.35	40.35

OPS-NO	A/C NO.	MISSION NO.	CONT.	PILOT	FLI. NO	HITS ON TARGET	HITS IN BULL	PERCENT HITS	PERCENT BULLS	PERCENT BULLS REL TO HITS
33703	79	37	F	1	1					
PASS	PROFILE	ROLL-IN-DIRECTION	MIL SET.	ROUNDS FIRED						
1	0	R	090	58	1	0	1.72	0.00	0.00	
2	0	R	060	61	17	5	27.86	8.19	29.41	
3	0	R	090	61	15	5	24.59	8.19	33.33	
4	0	R	090	58	9	2	15.51	3.44	22.22	
5	E	L	096	61	26	2	42.62	3.27	7.69	
6	E	L	006	61	0	0	0.00	0.00	0.00	
7	E	L	006	61	30	1	49.18	1.63	3.33	
8	E	L	006	60	45	1	75.00	1.66	2.22	

TEST DATA

Figures 2 through 38



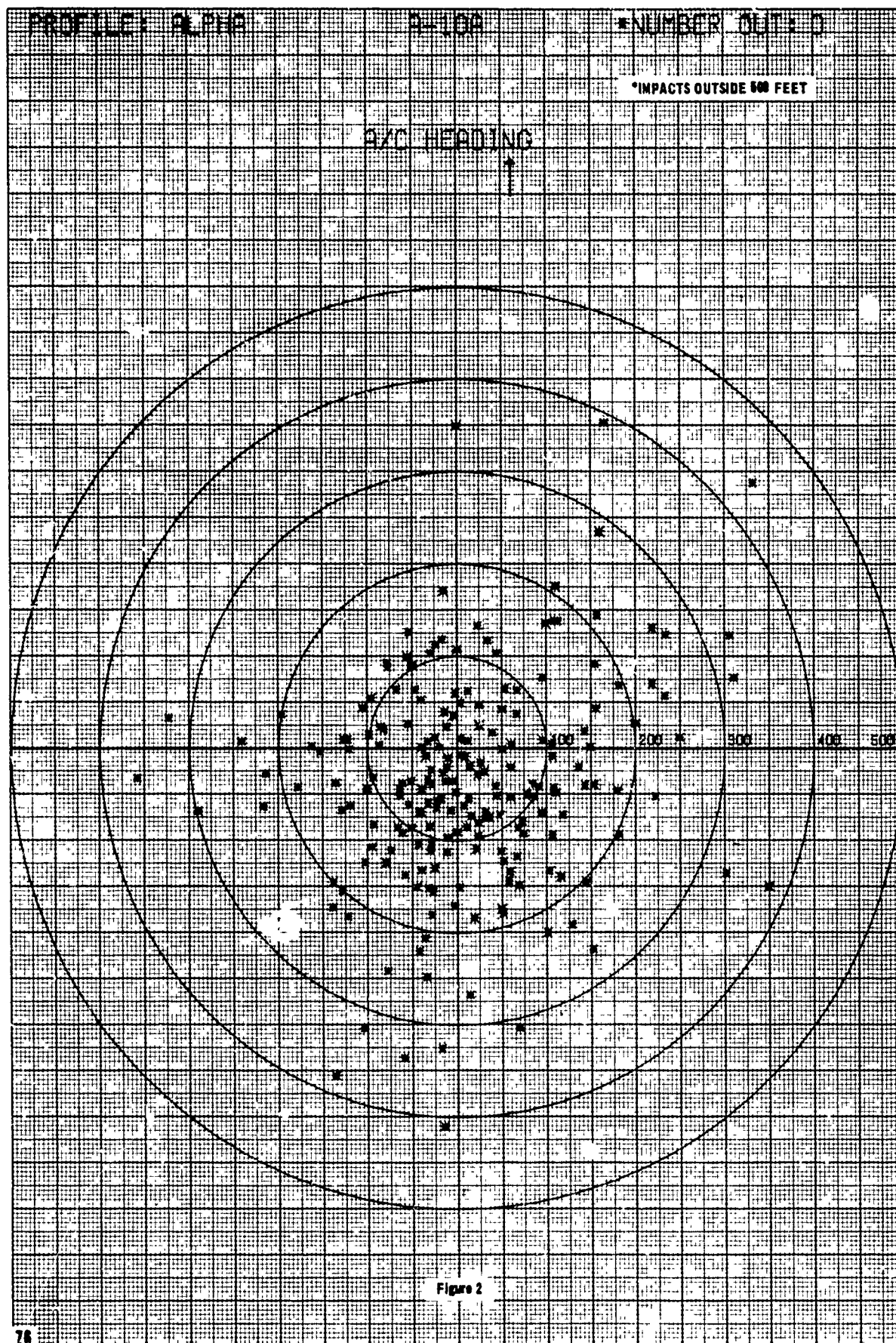
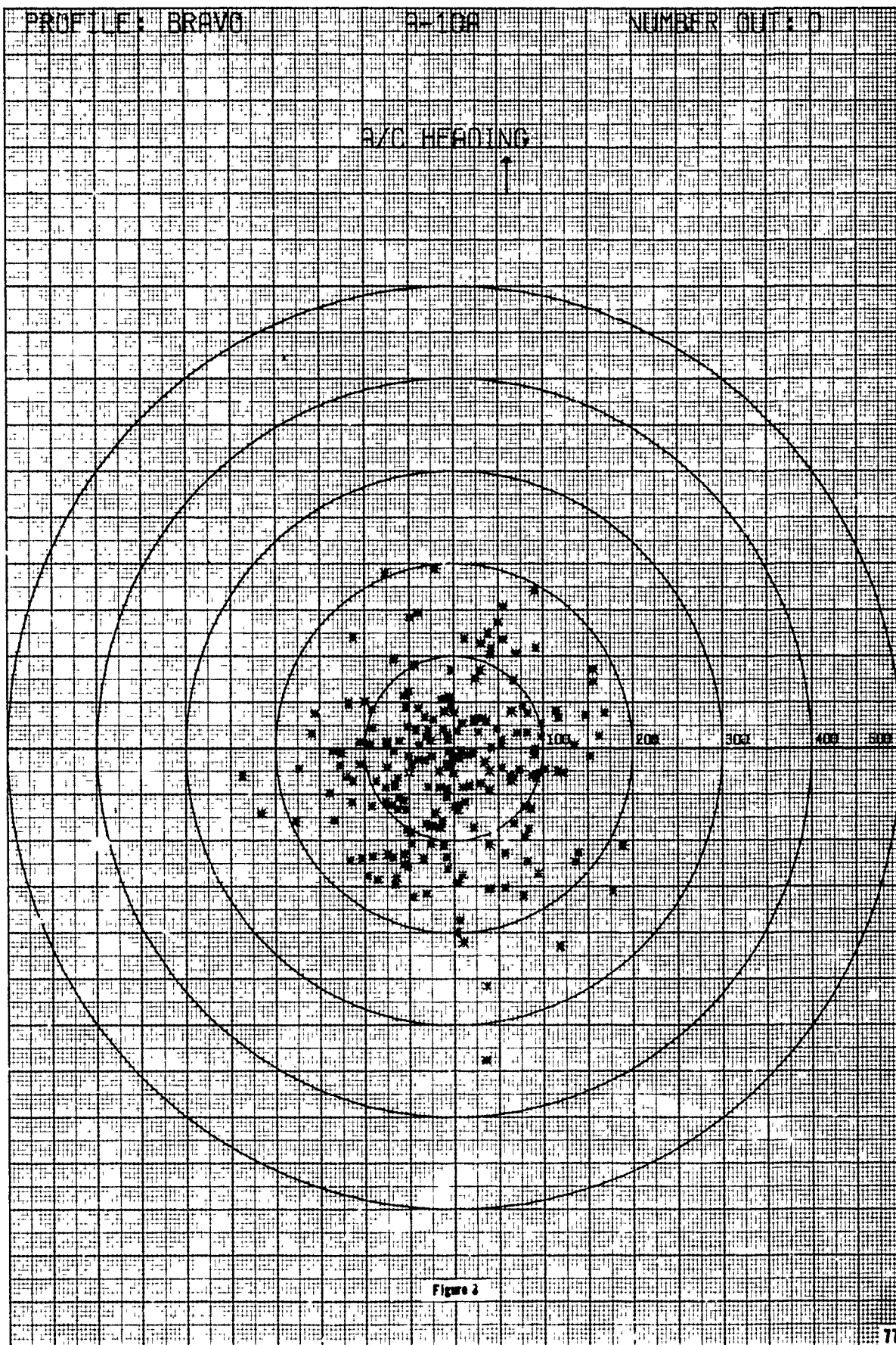


Figure 2



PROFILE: CHARLIE

B-10A

NUMBER OUT: 0

A/C HEADING

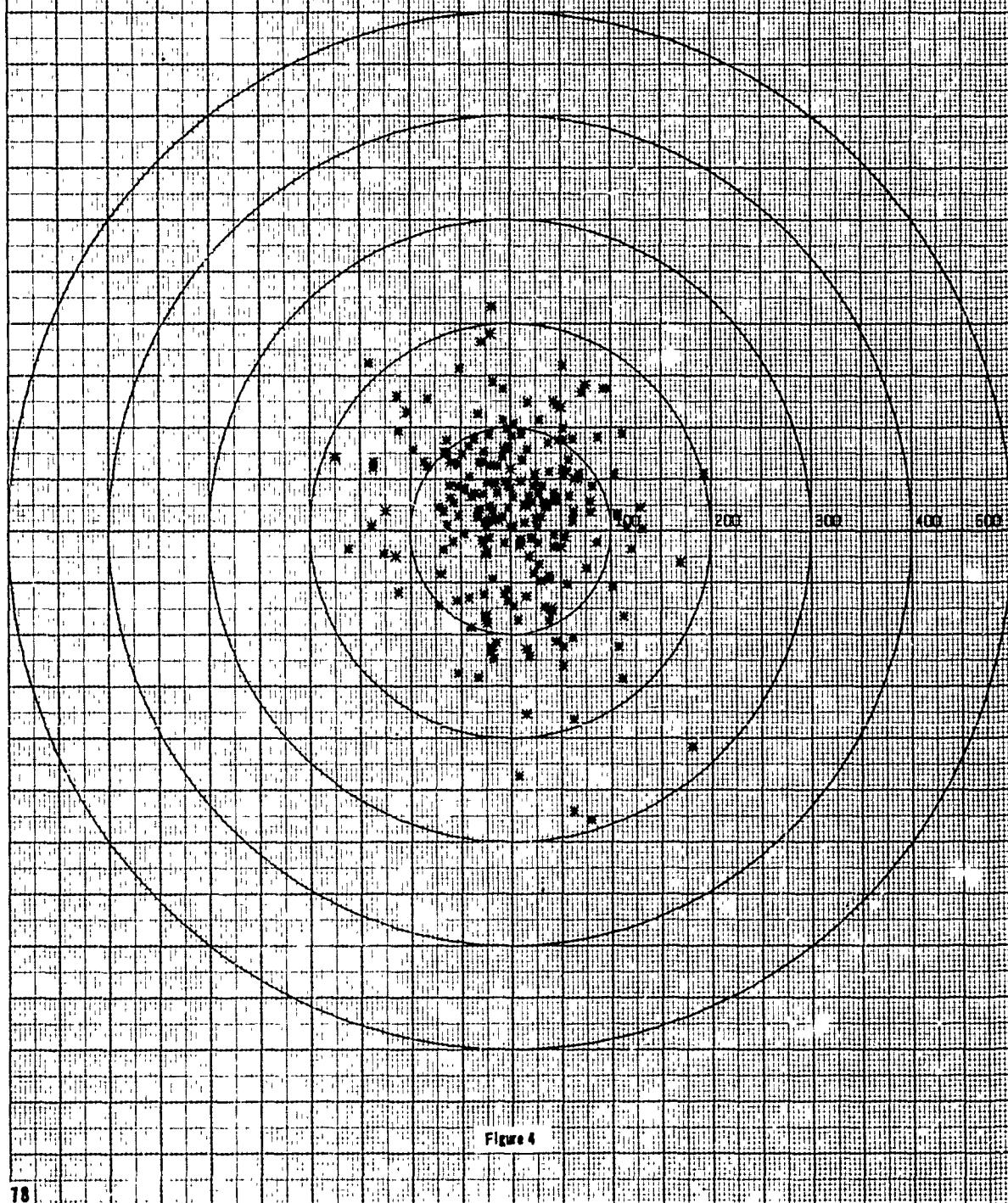
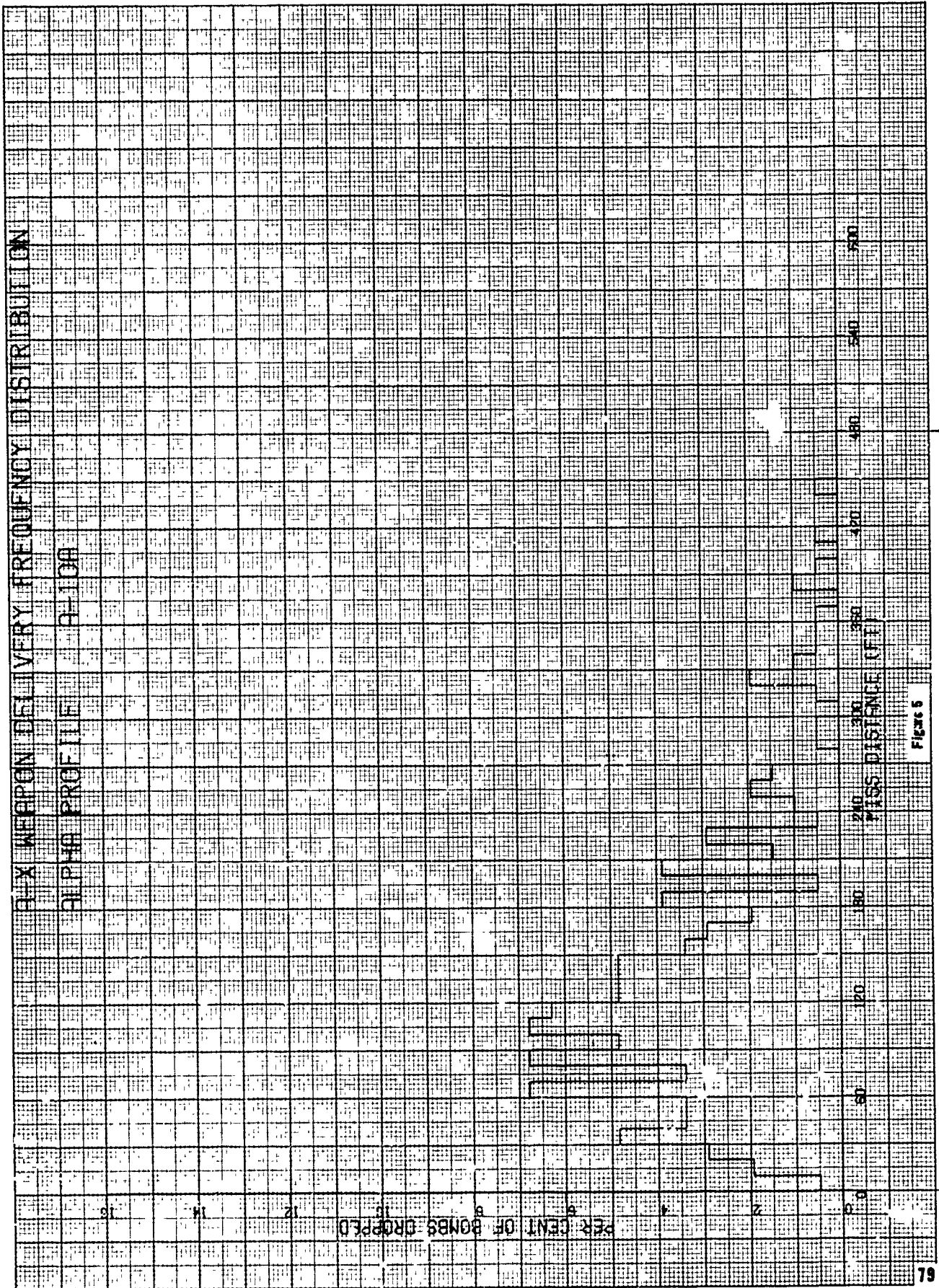


Figure 4



A-X WEAPON DELIVERY CUMULATIVE DISTRIBUTION

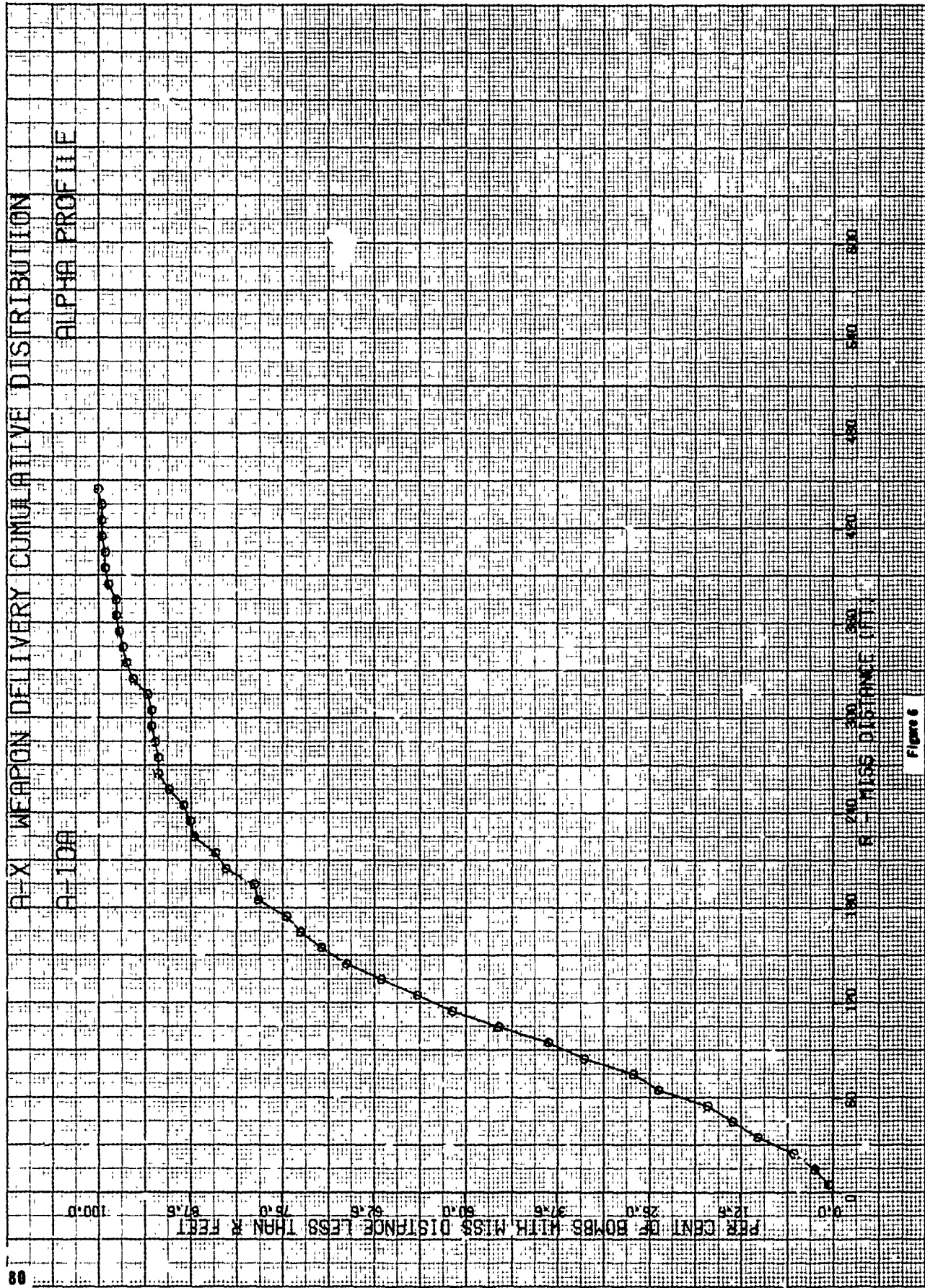
ALPHA PROFILE

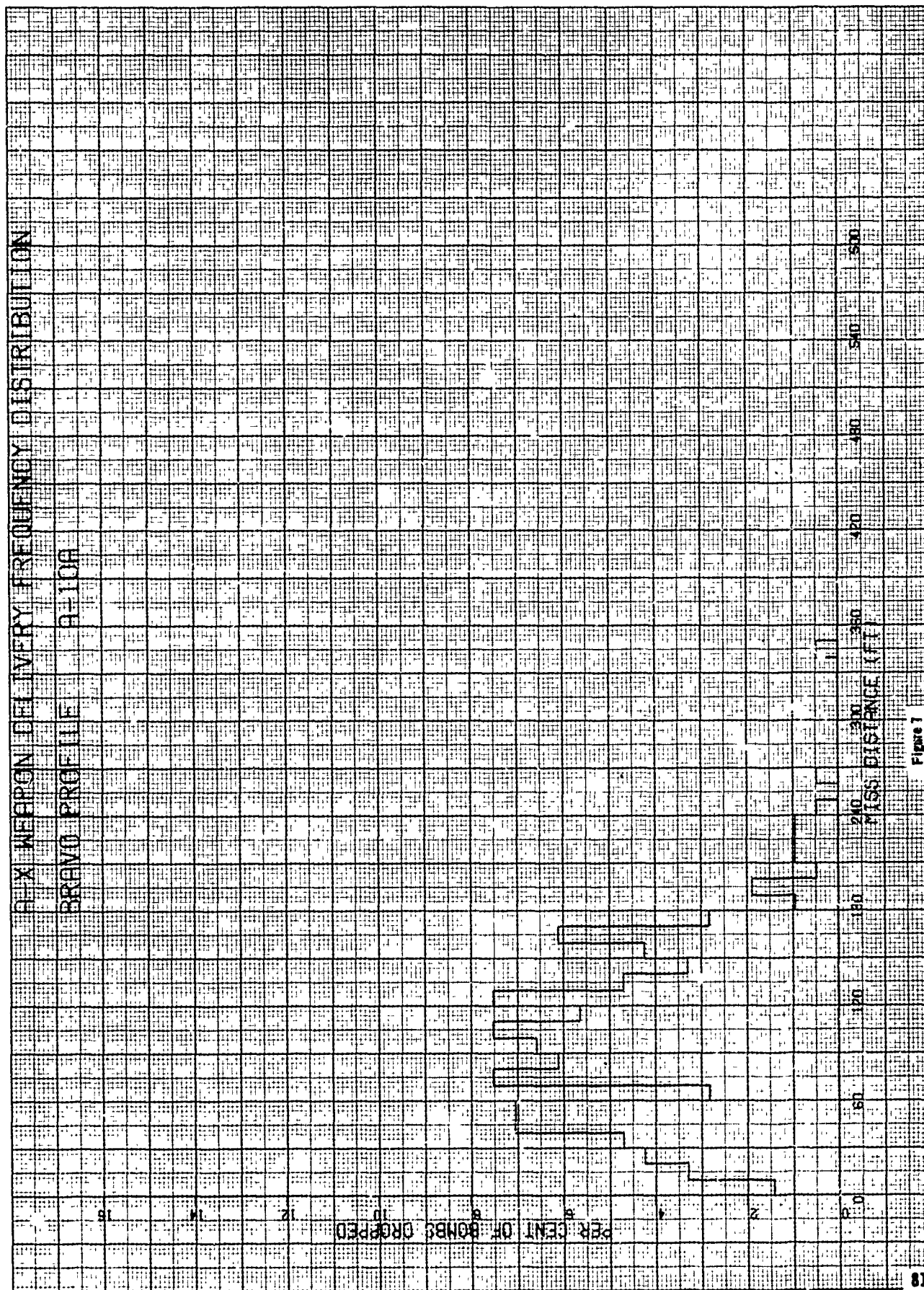
A-10A

PER CENT OF BOMBS WITH MISS DISTANCE LESS THAN R FEET

R - MISS DISTANCE (FT)

Figure 6





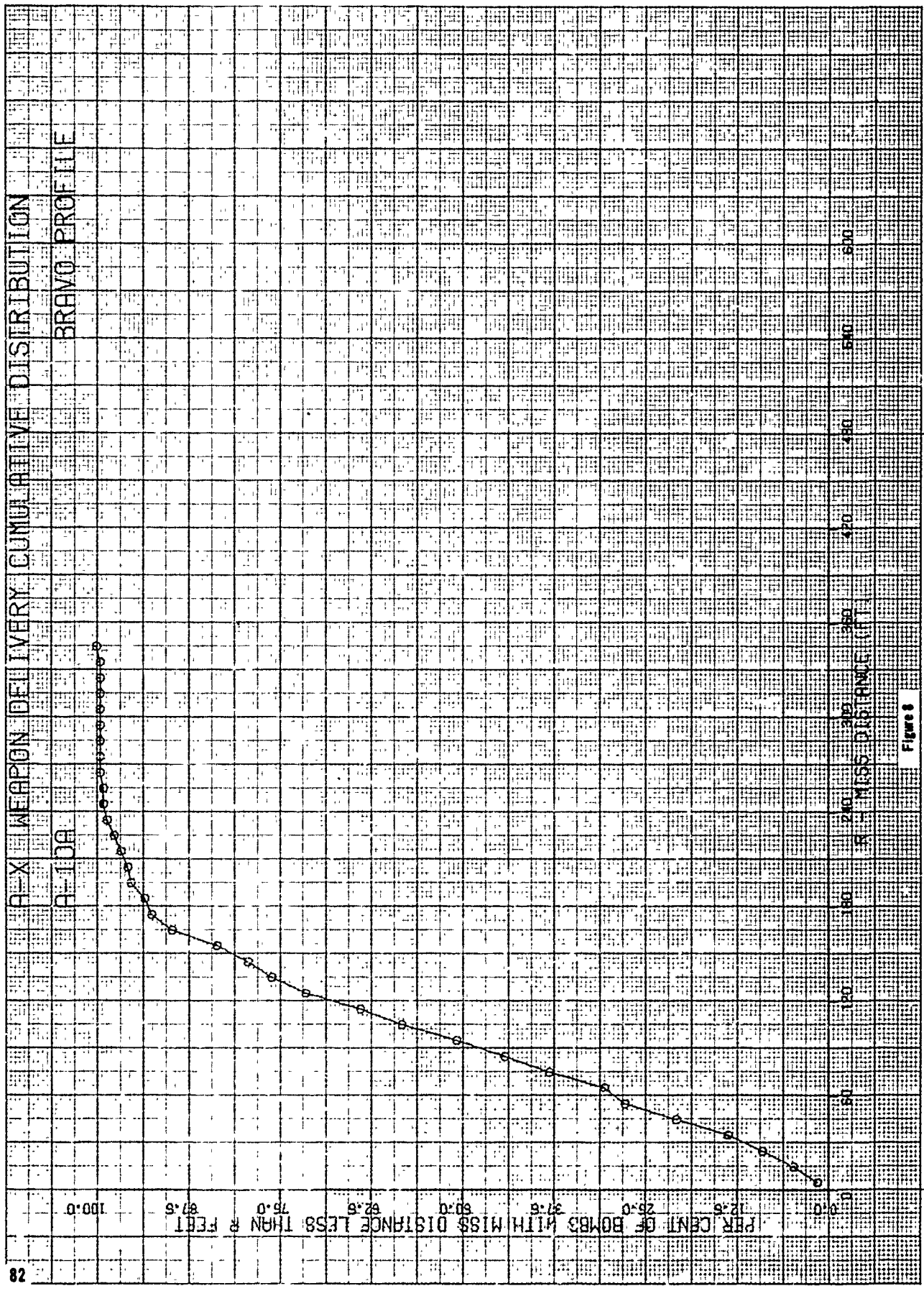


Figure 8

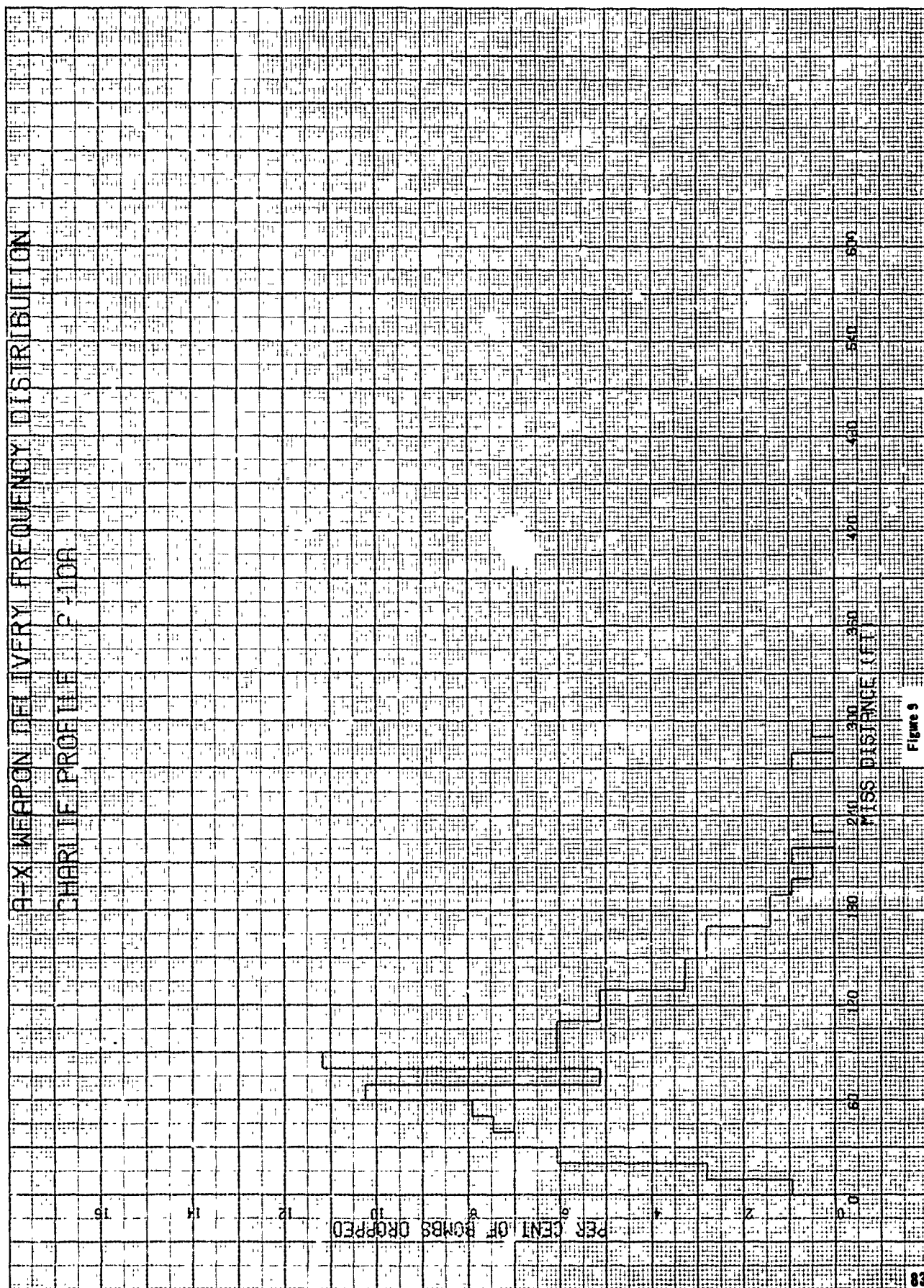


Figure 9

AL-X WEAPON DELIVERY CUMULATIVE DISTRIBUTION

CHARLIE PROFILE

AL-108

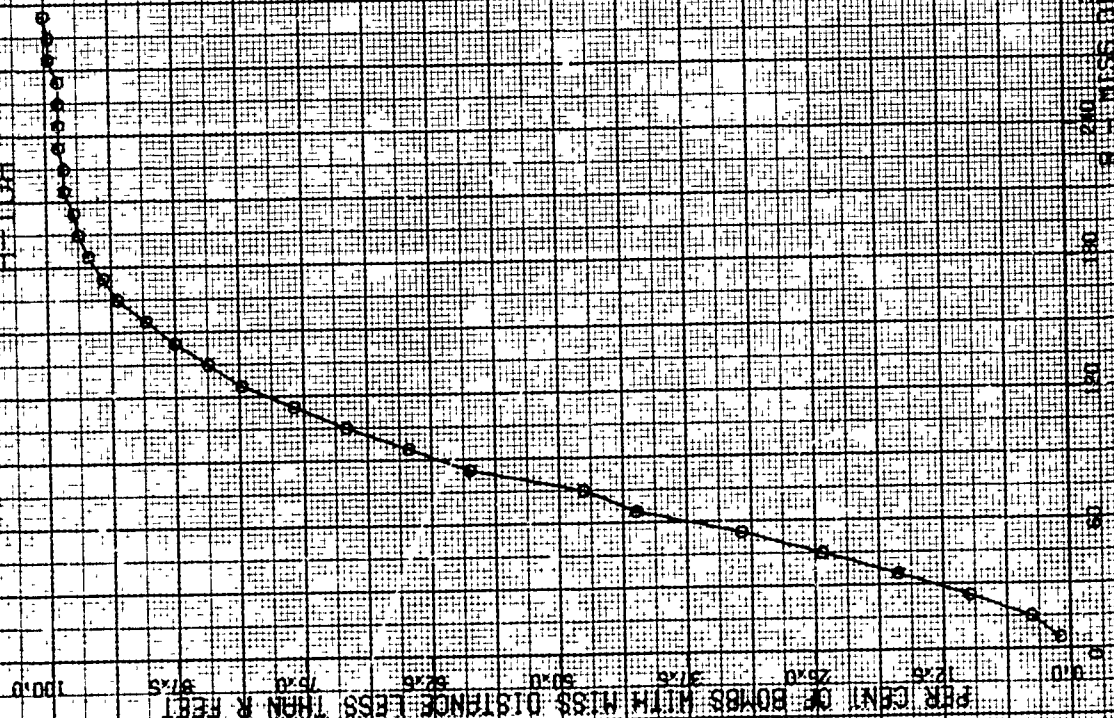
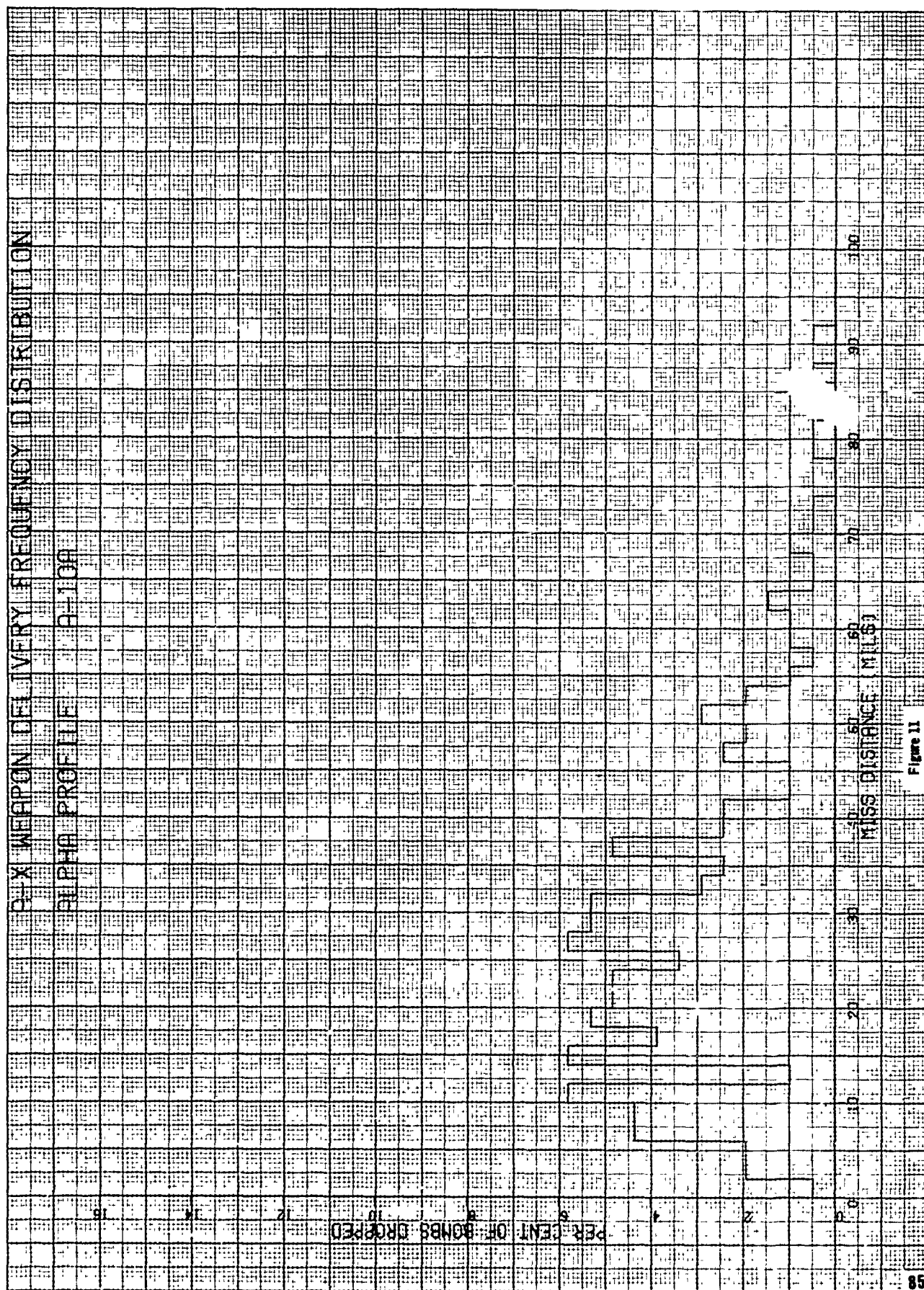


Figure 10



ALPHA WEAPON DELIVERY CUMULATIVE DISTRIBUTION

ALPHA PROFILE

A-10A

100.0

97.5

95.0

92.5

90.0

87.5

85.0

82.5

80.0

77.5

75.0

PER CENT OF BOMBS WITH MISS DISTANCE LESS THAN R MILS

R - MISS DISTANCE (MILS)

Figure 12

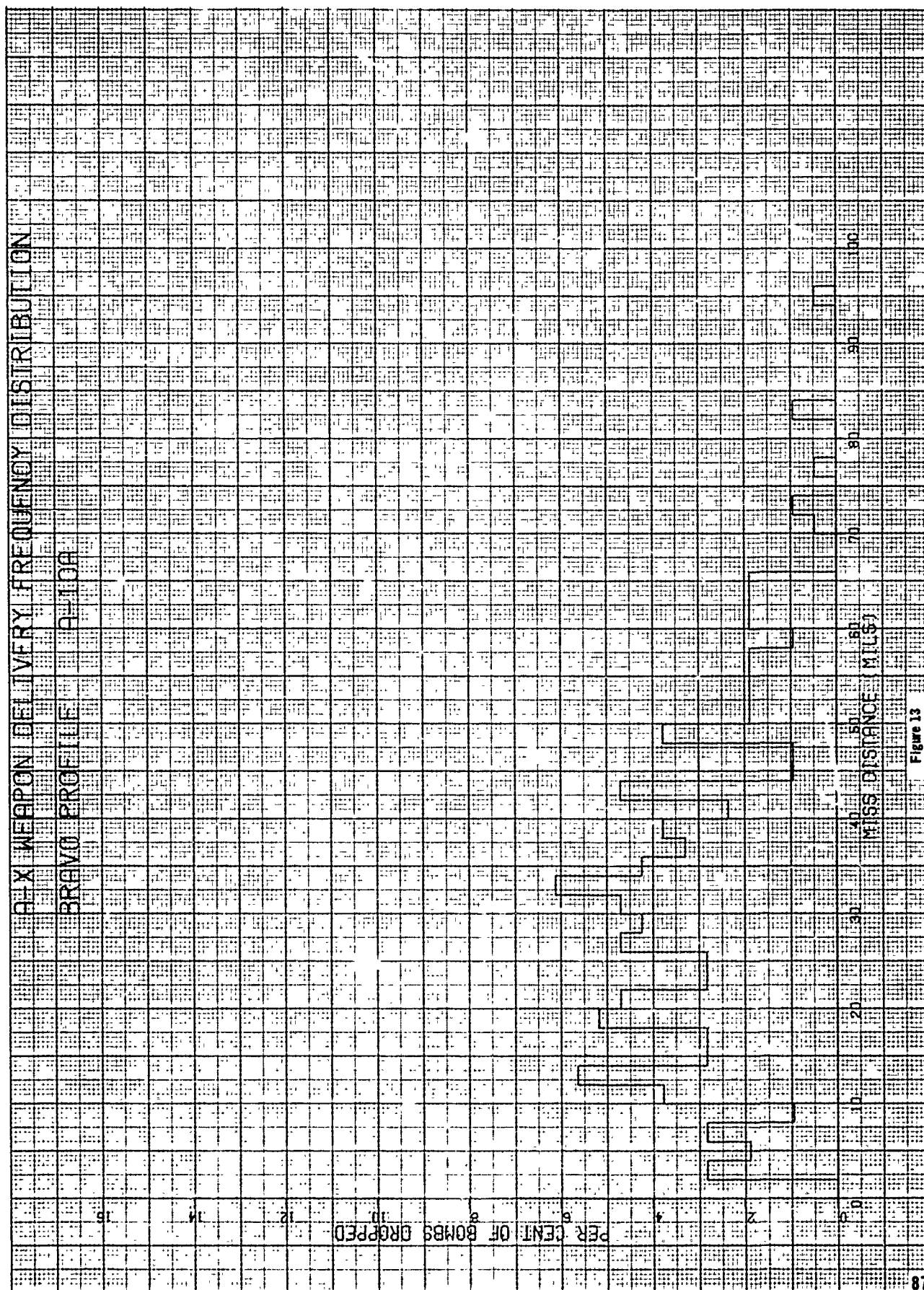


Figure 13

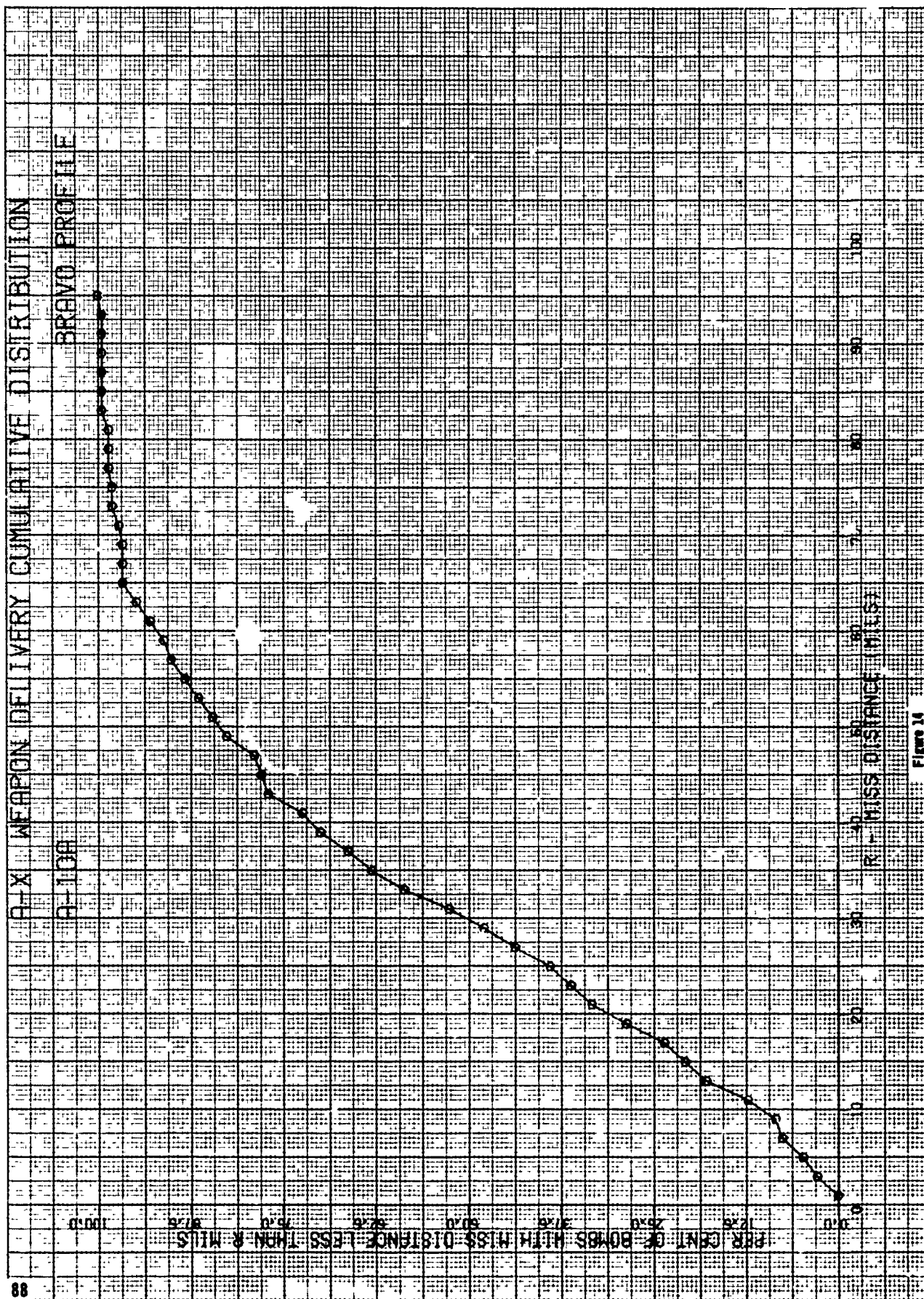


Figure 14

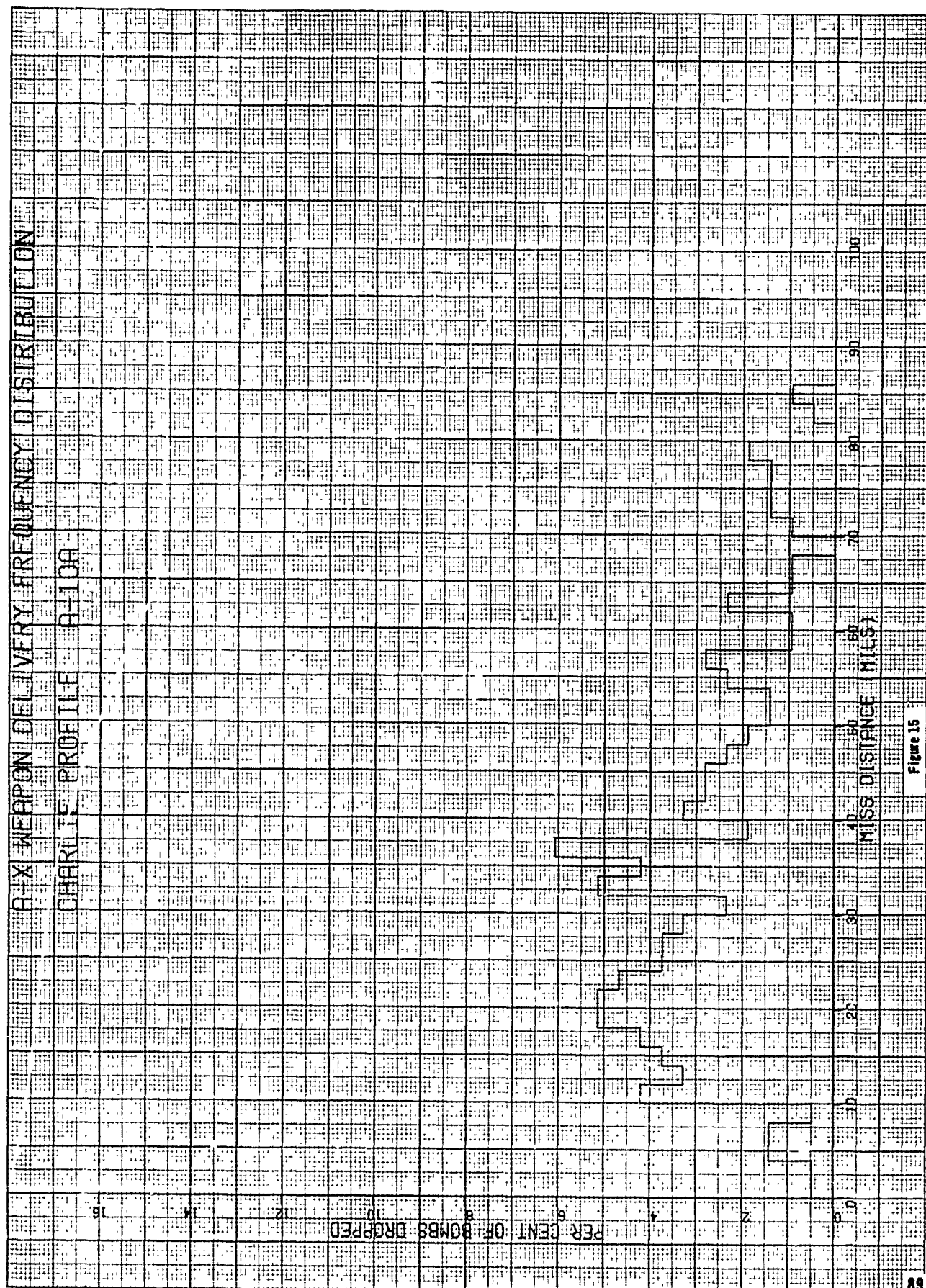


Figure 15

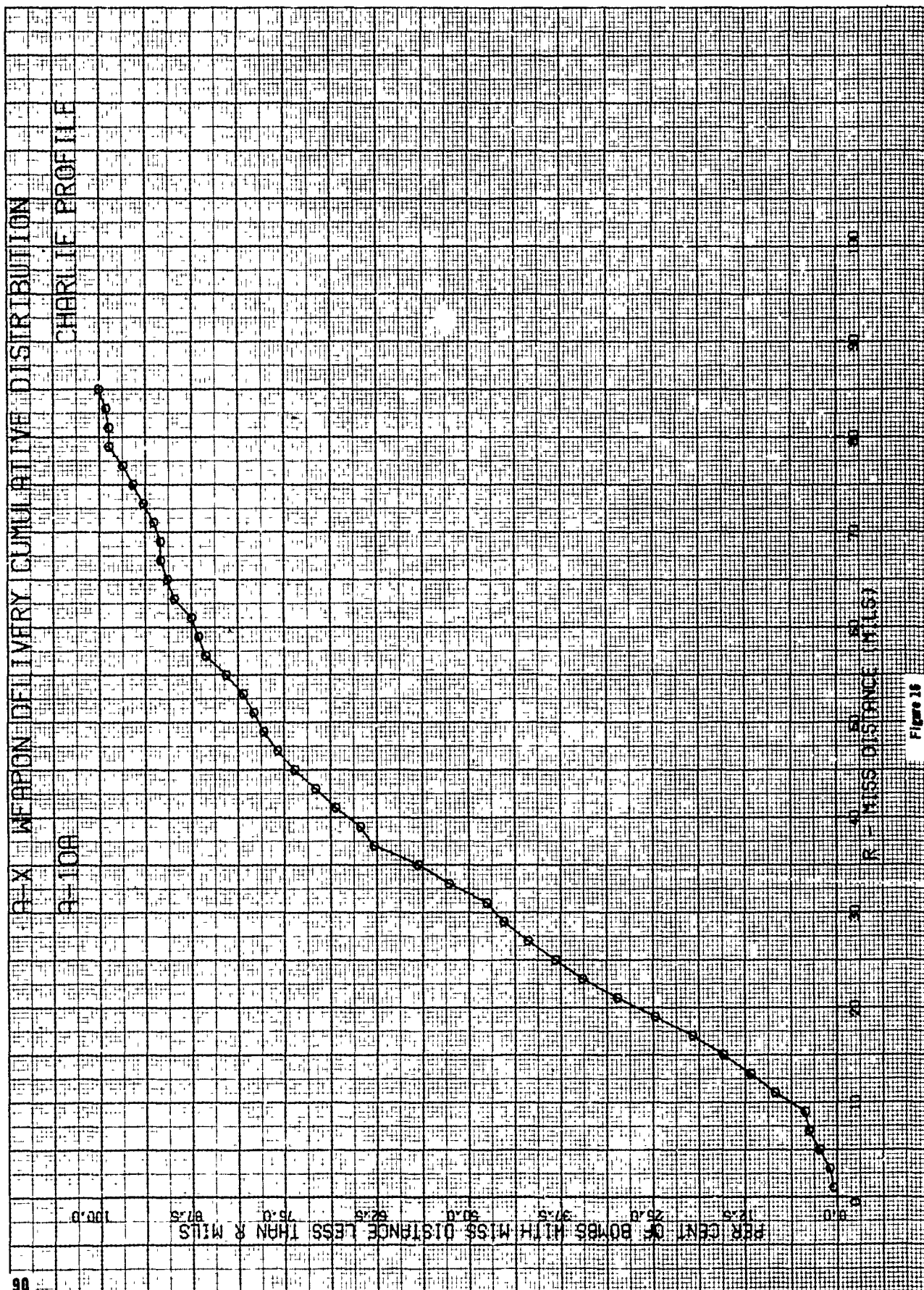


Figure 16

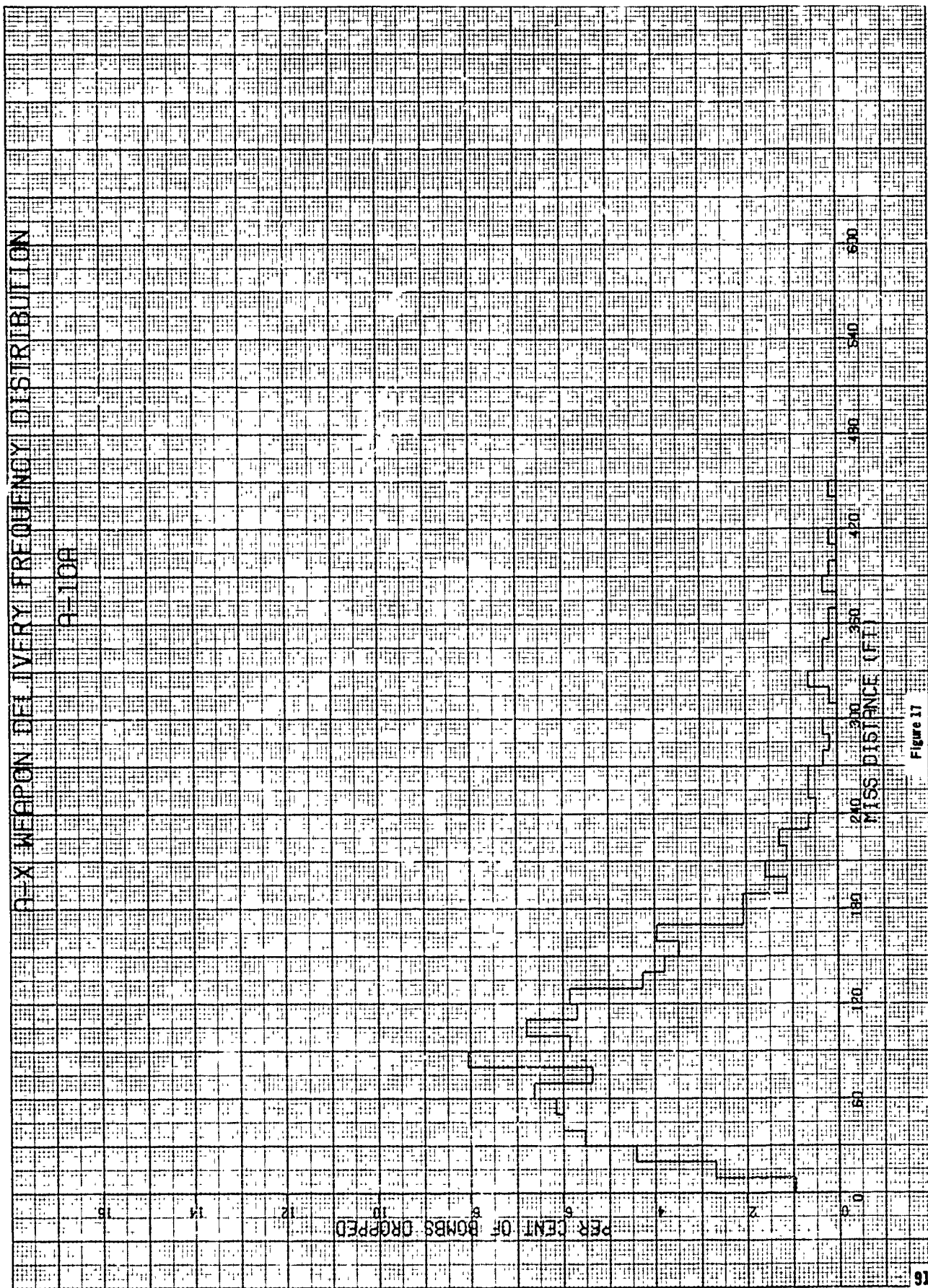


Figure 17

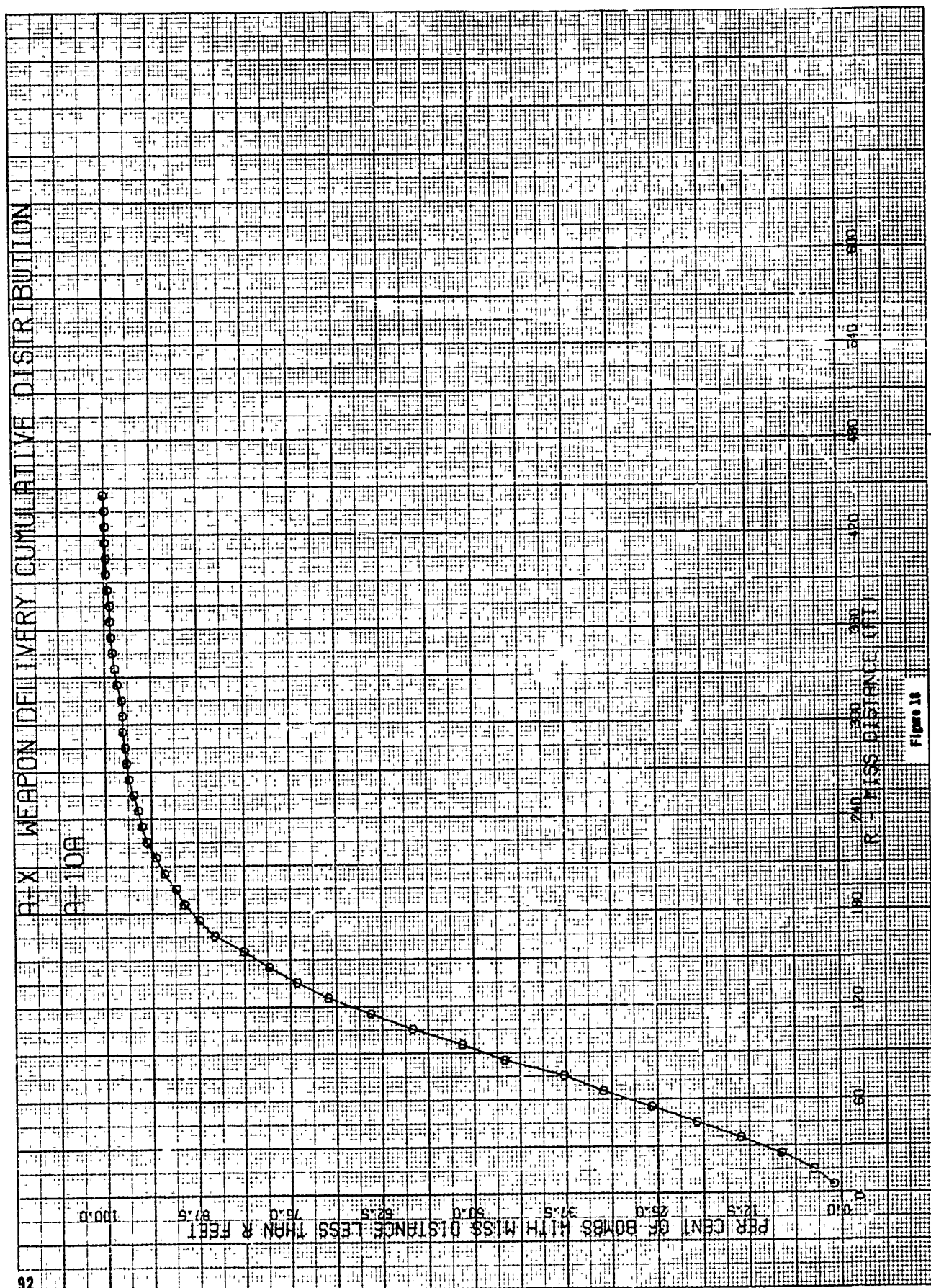


Figure 16

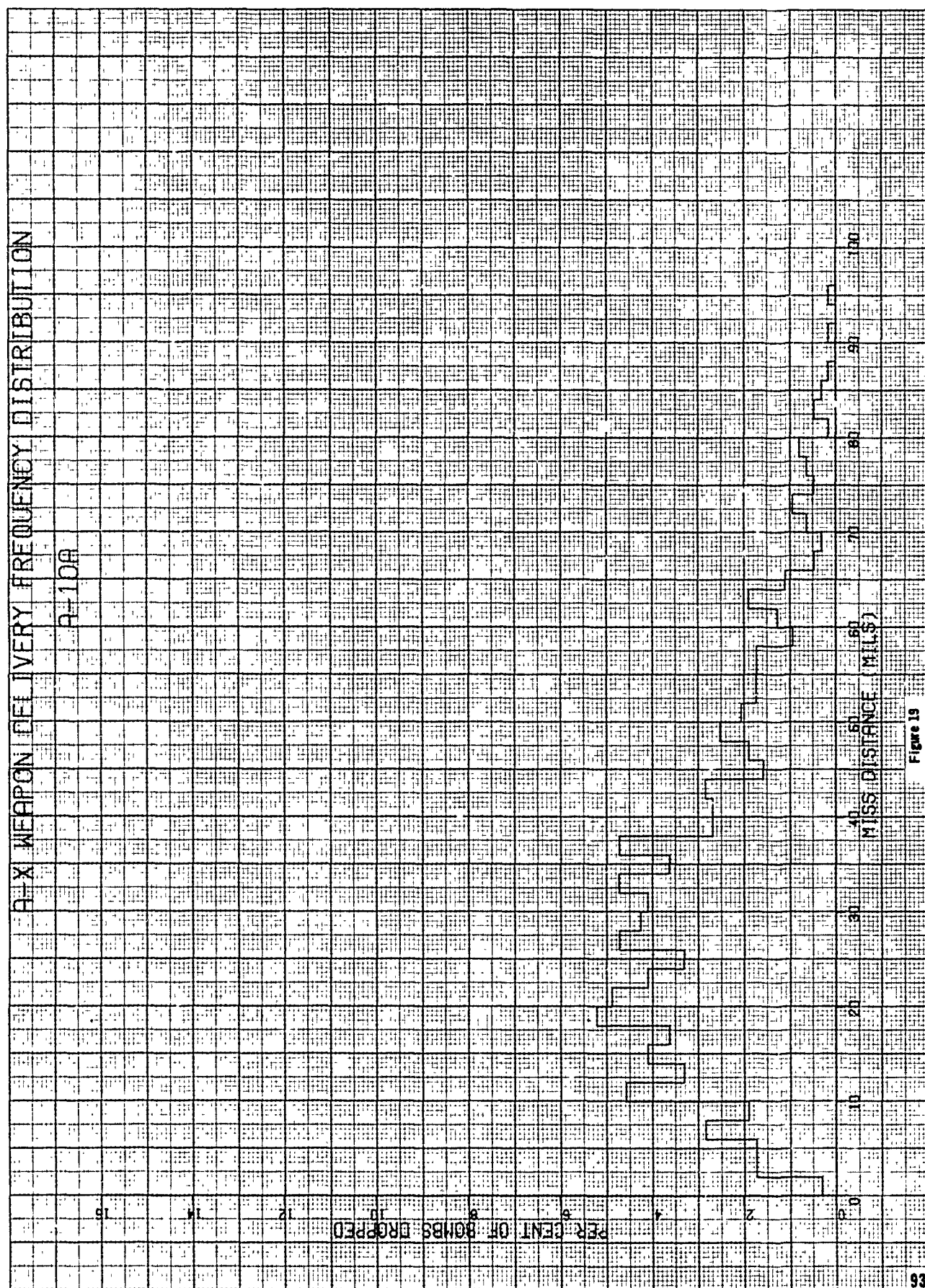


Figure 19

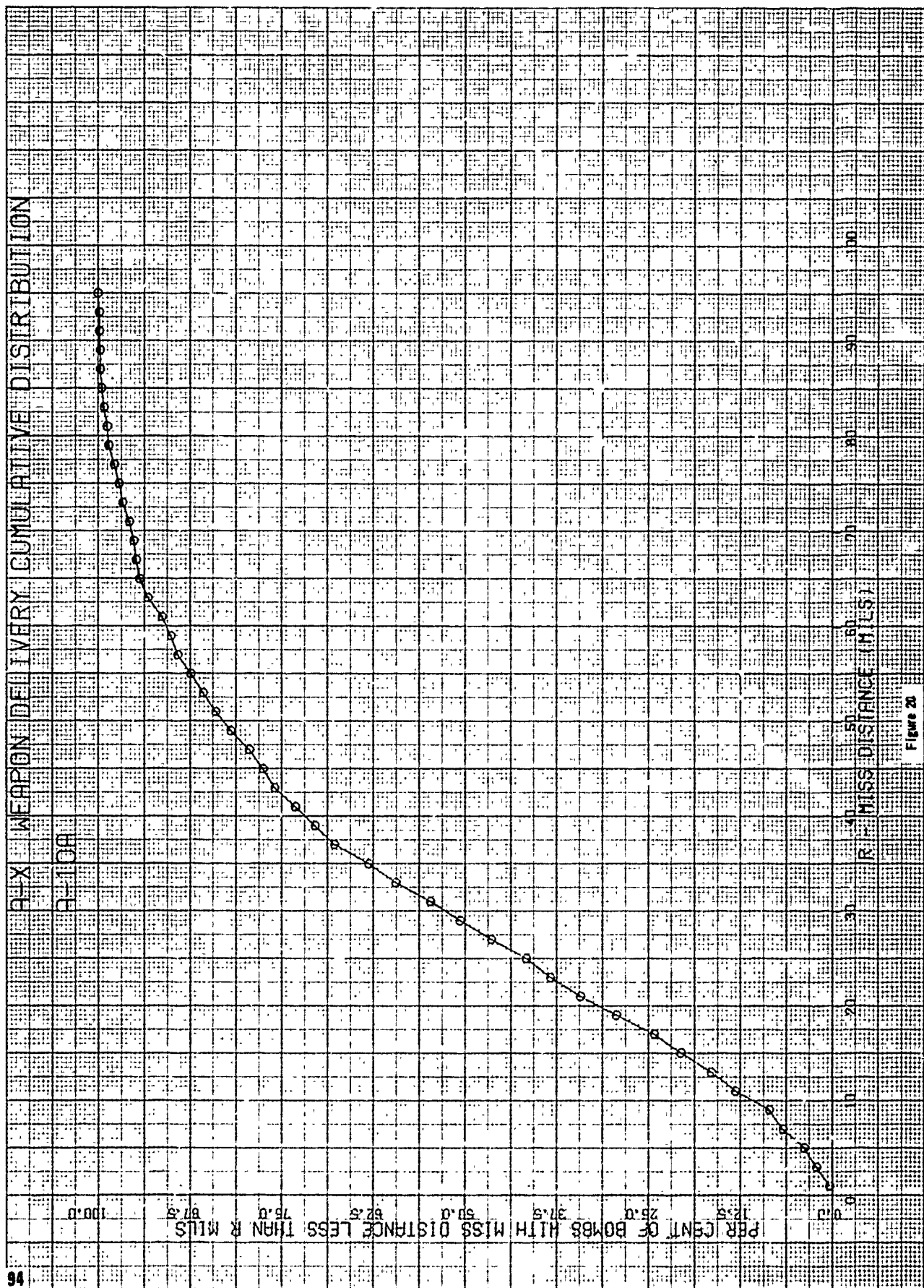


Figure 20

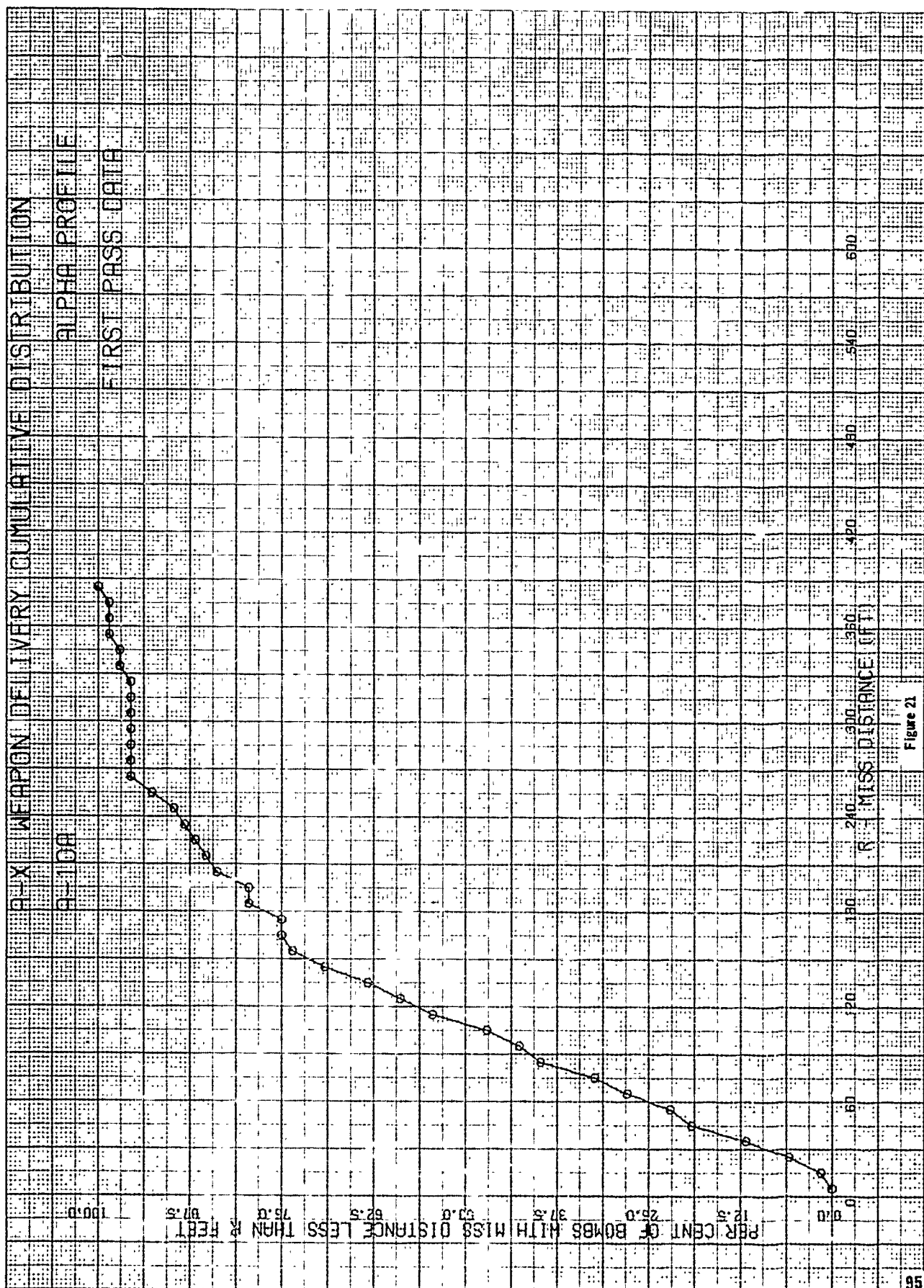


Figure 21

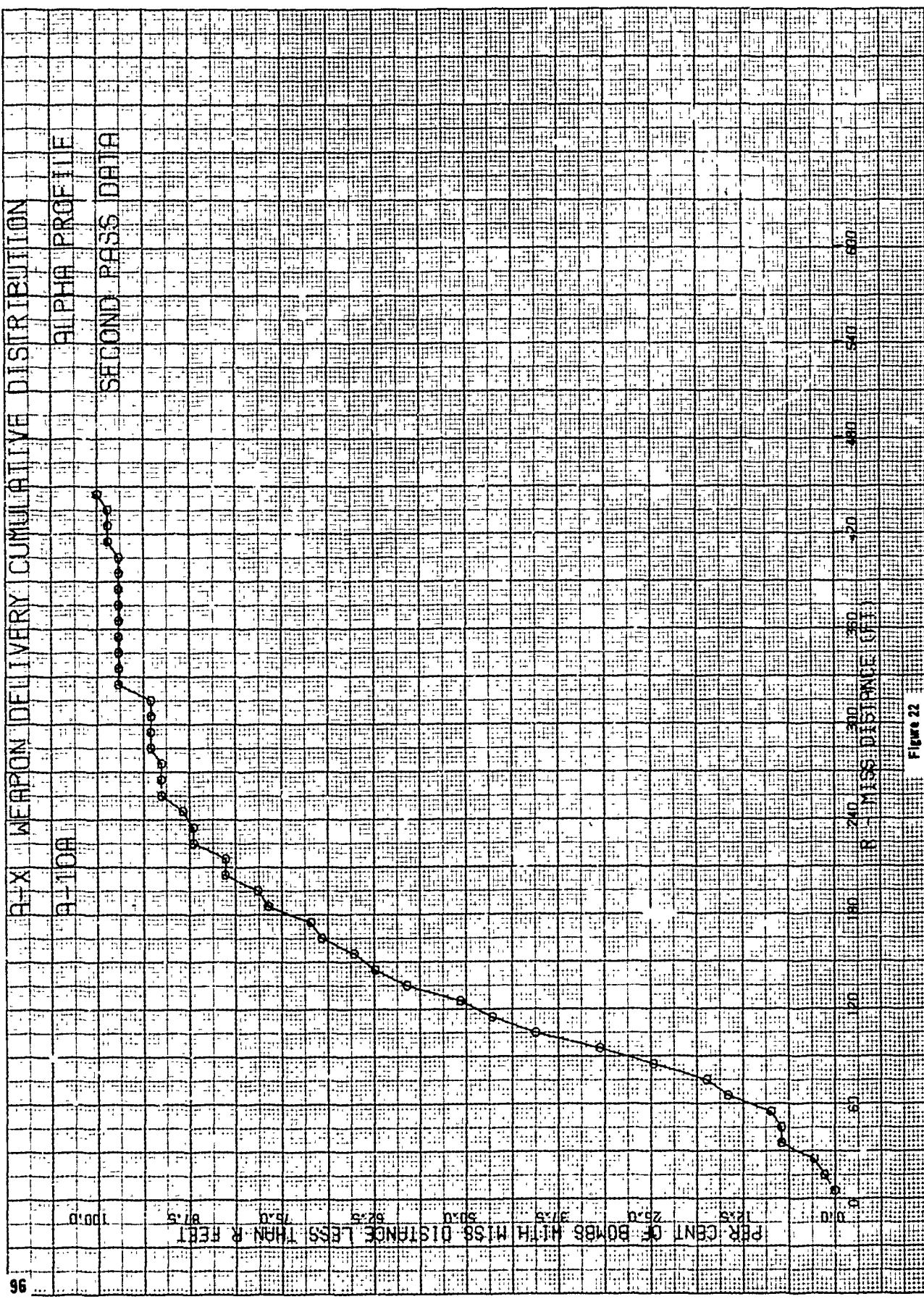


Figure 22

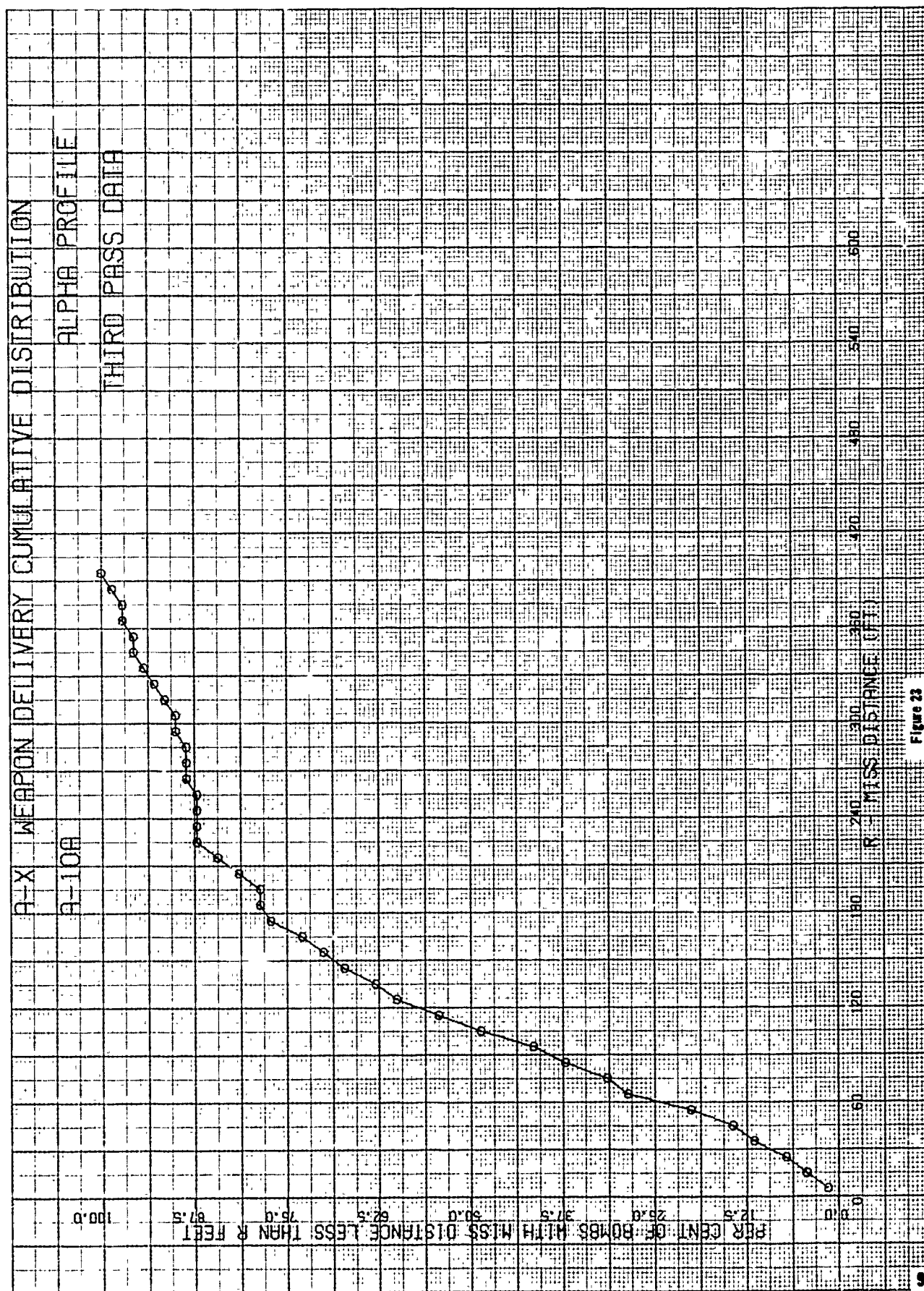


Figure 23

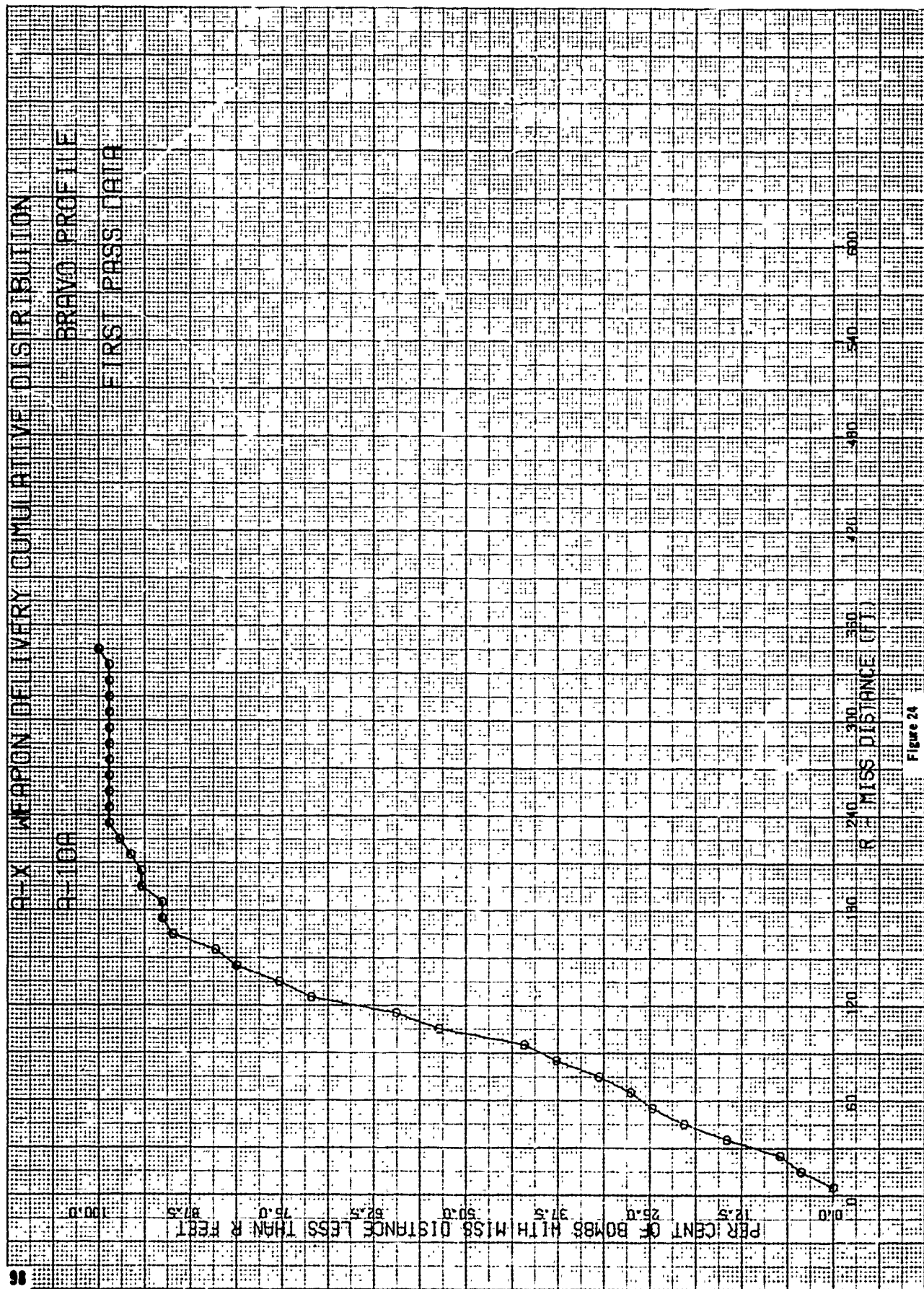


Figure 24

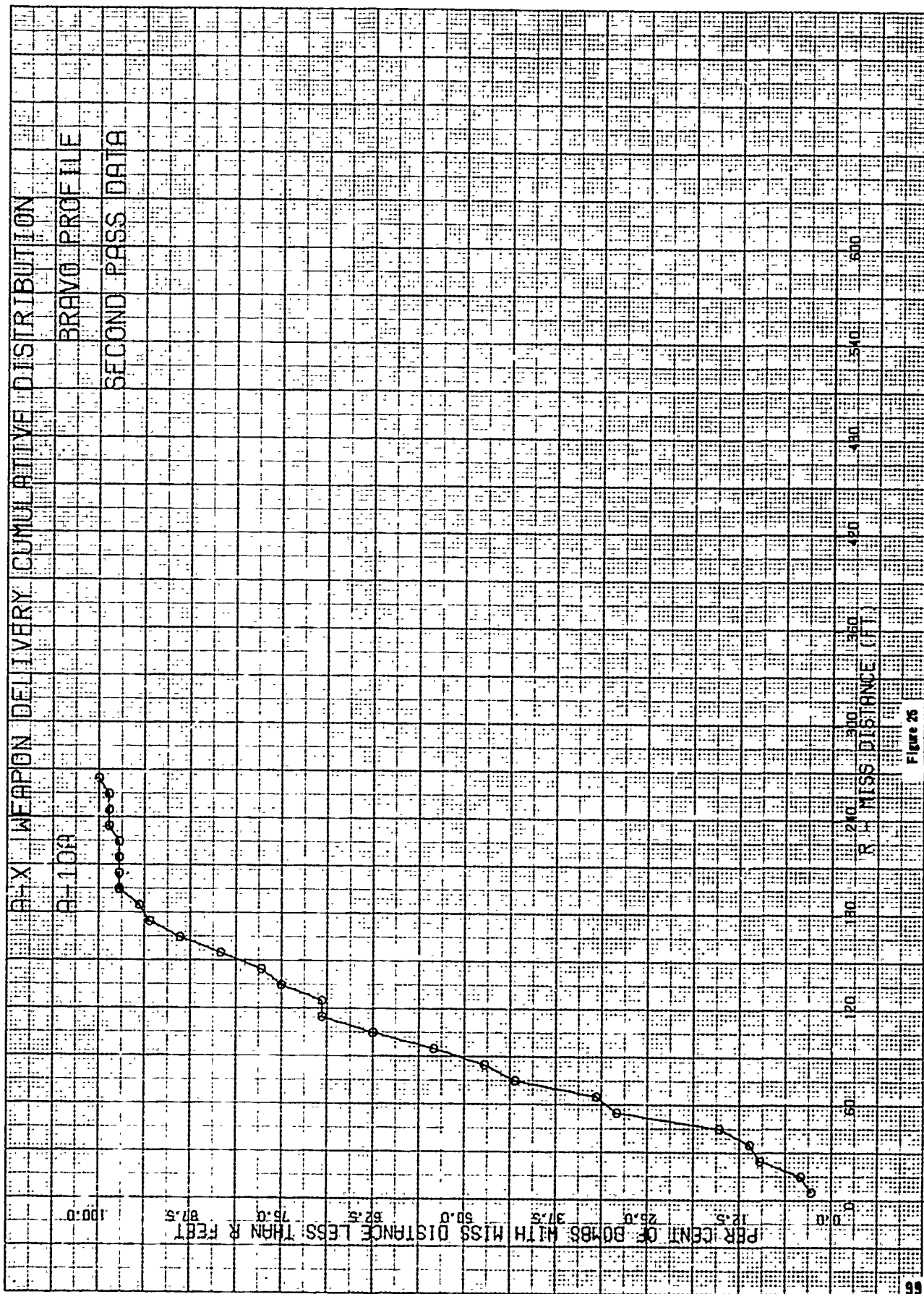


Figure 25

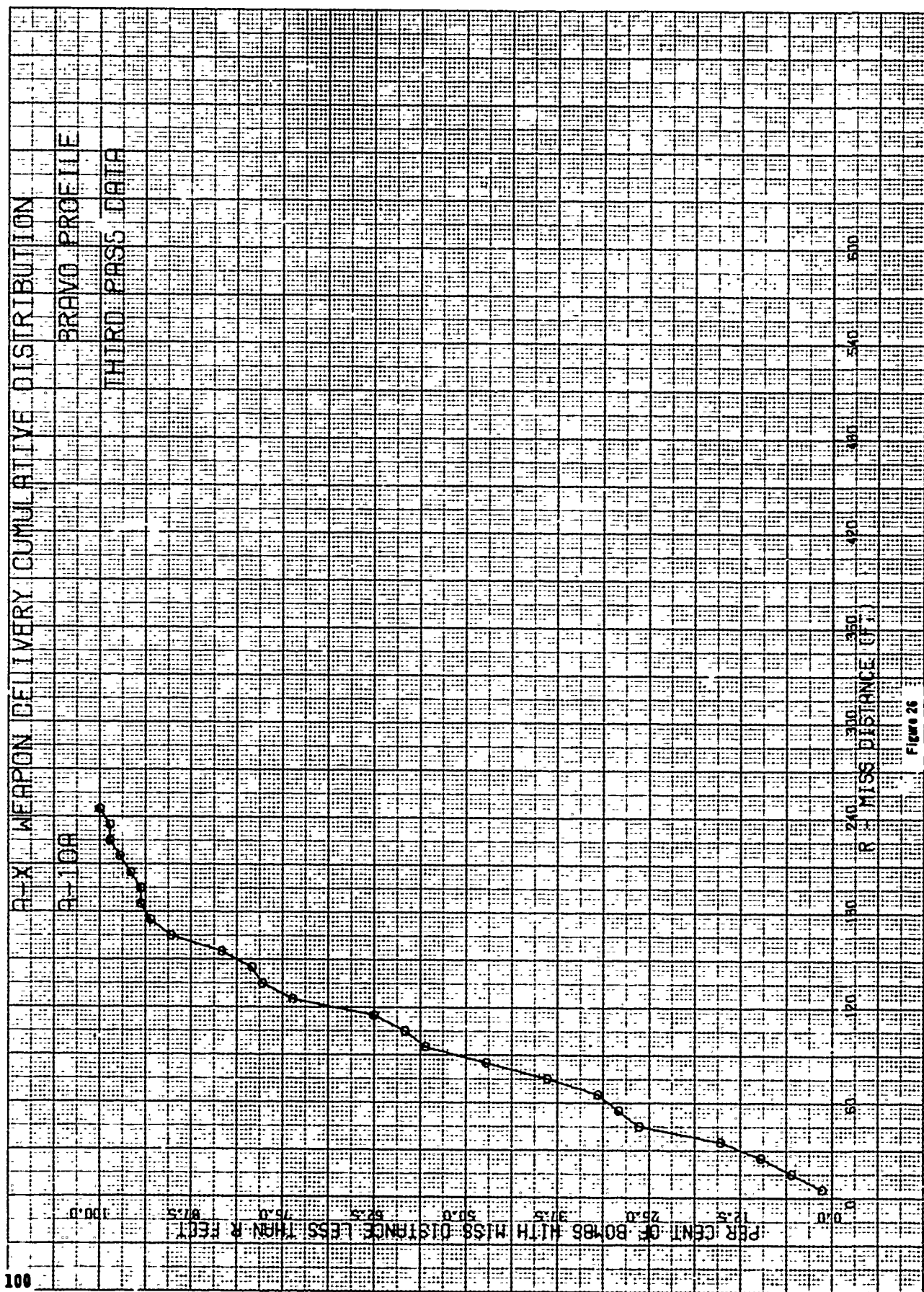


Figure 26

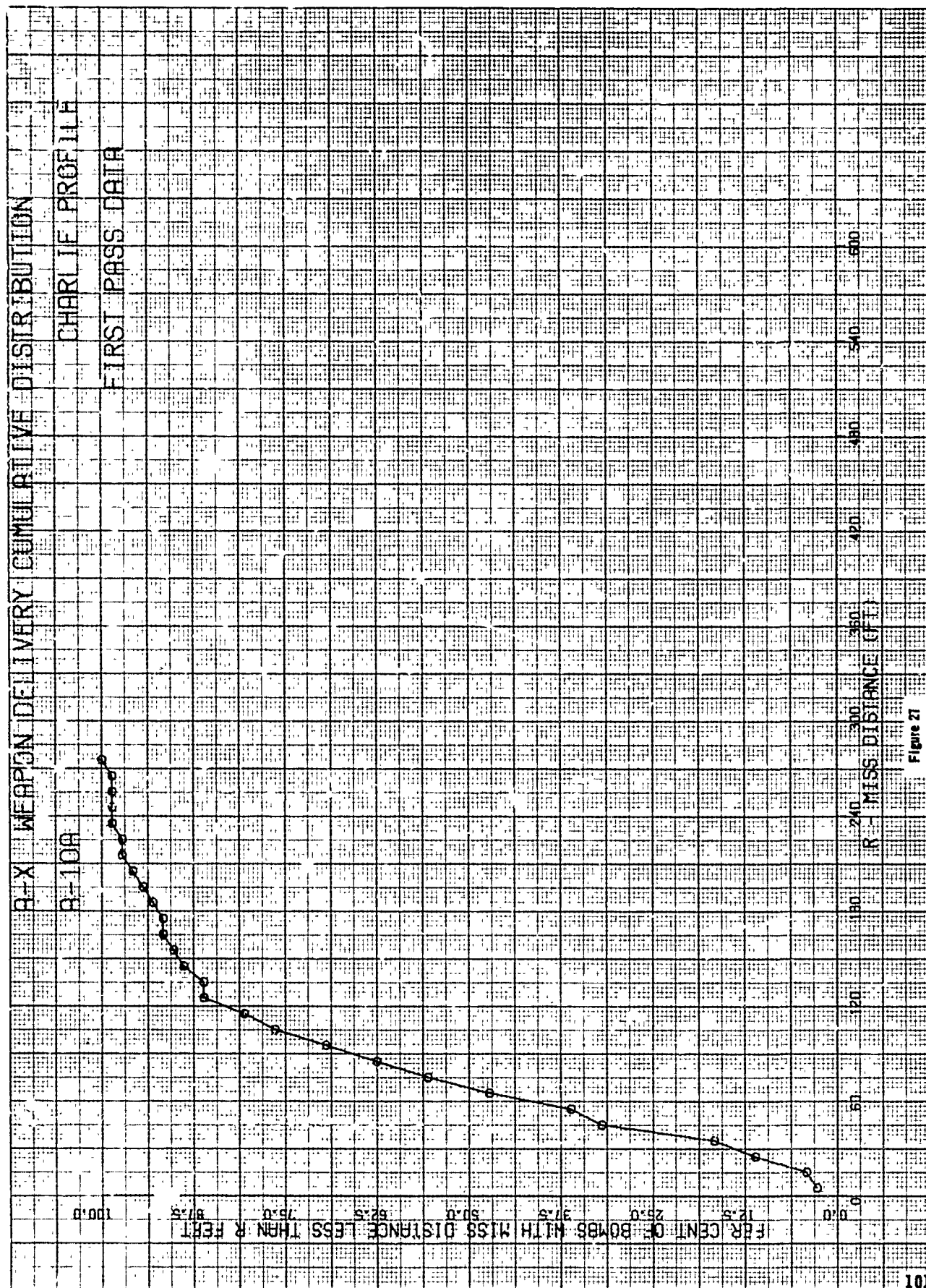


Figure 27

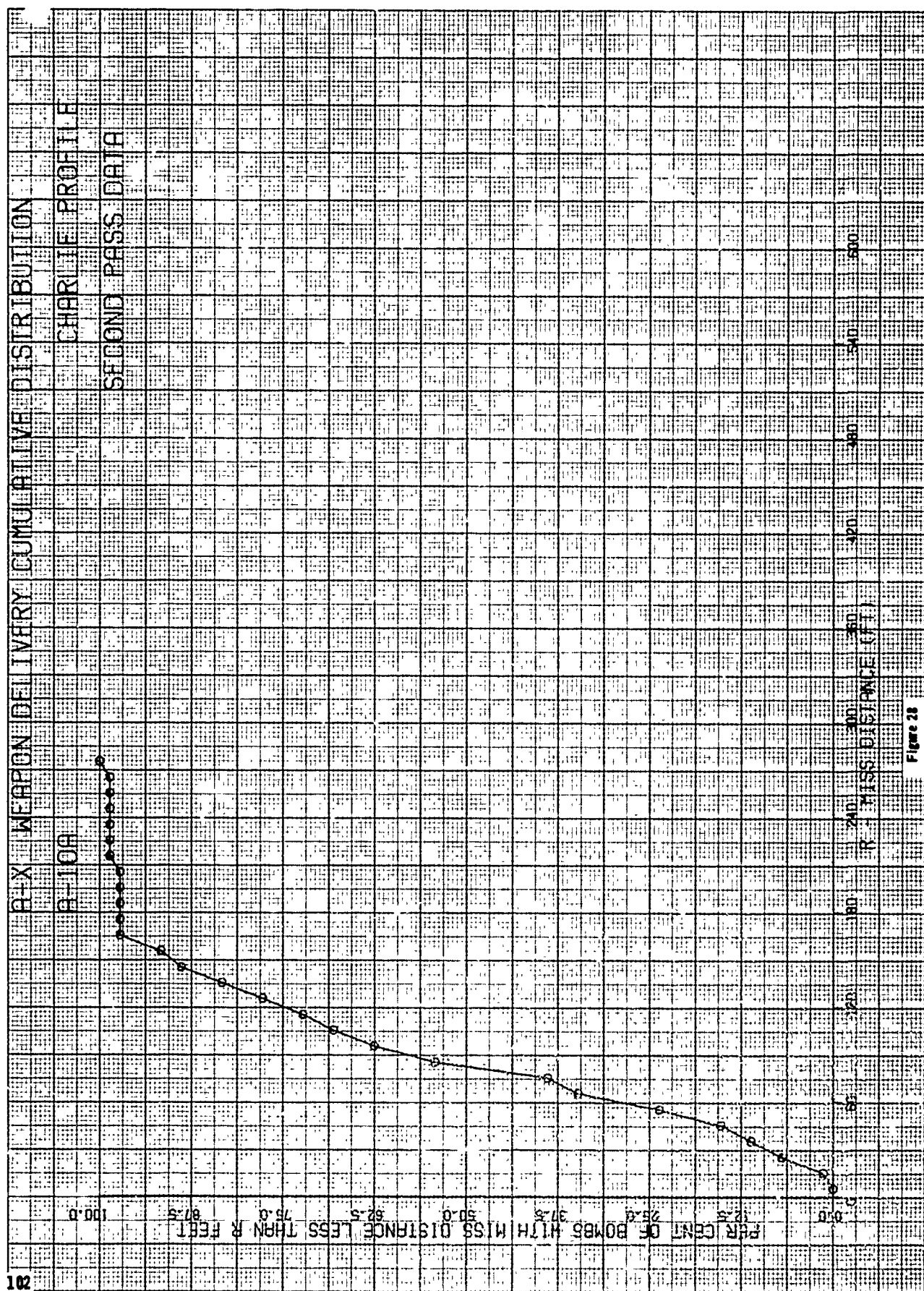


Figure 28

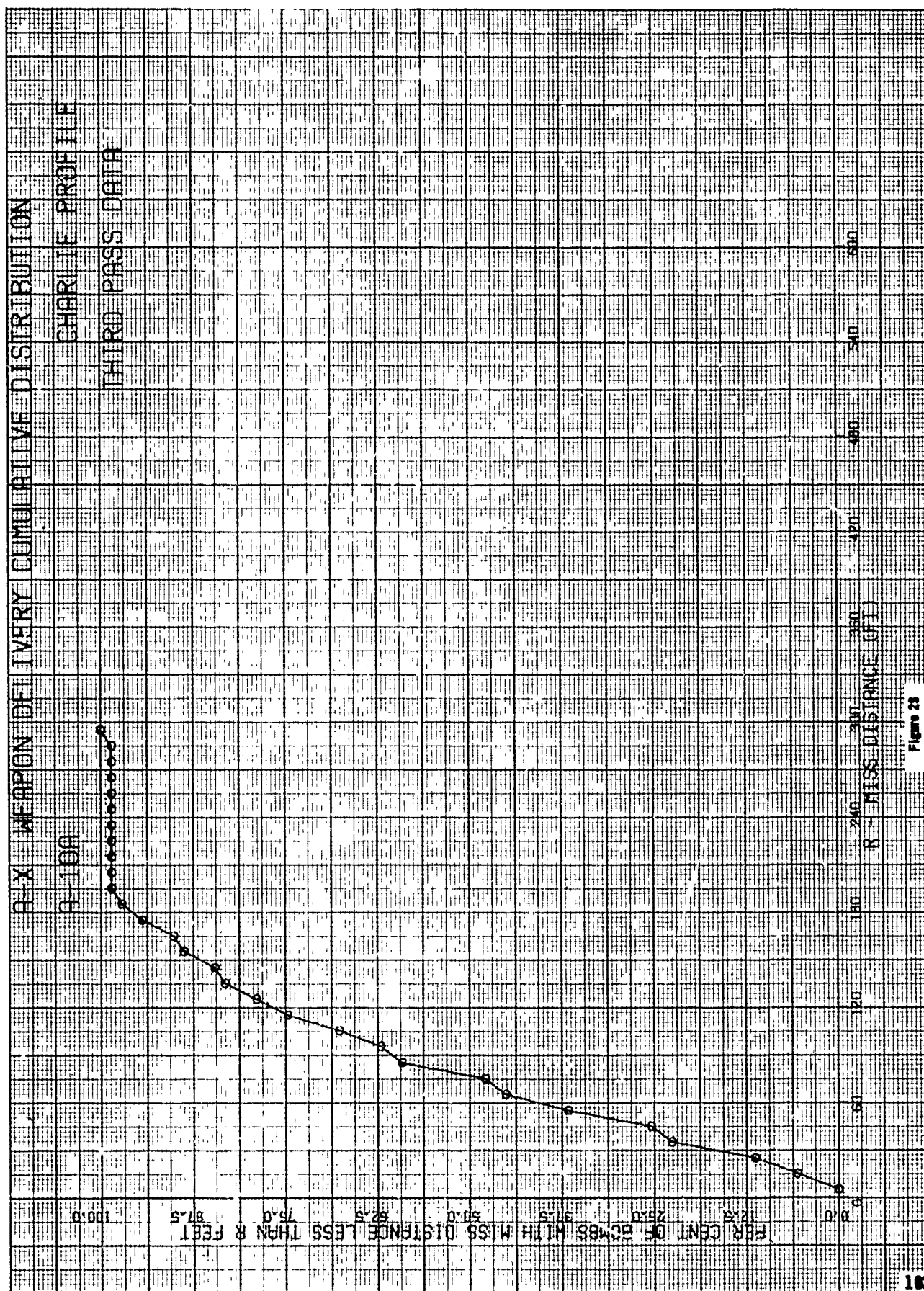


Figure 28

A-X STRAFING FREQUENCY DISTRIBUTION

PROFILE ECHO A-10A

64

56

48

40

32

24

16

8

0

PERCENT OF STRAFE PASSES

*PERCENT OF PASSES WITH ZERO PERCENT HITS OR BULLS.

100

90

80

70

60

50

40

30

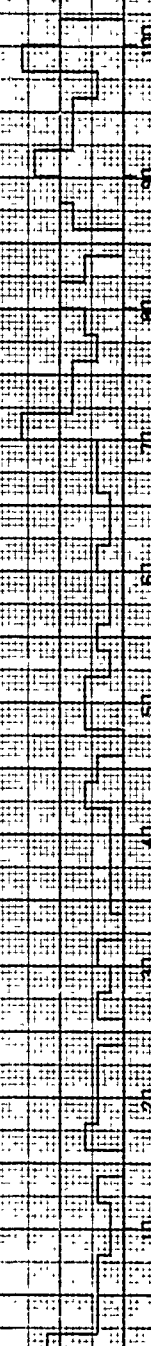
20

10

0

PERCENT HITS PER PASS

Figure 36



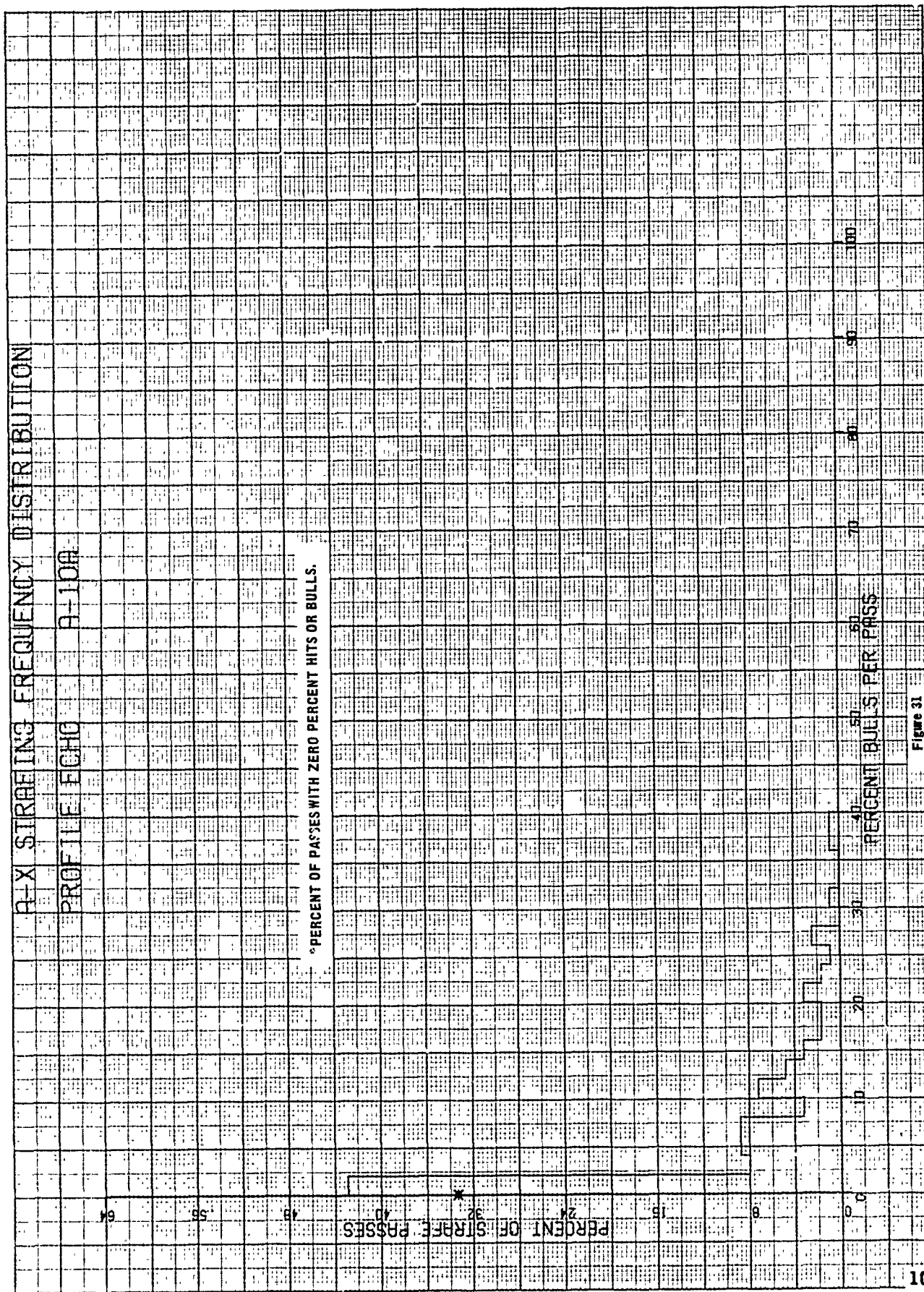


Figure 31

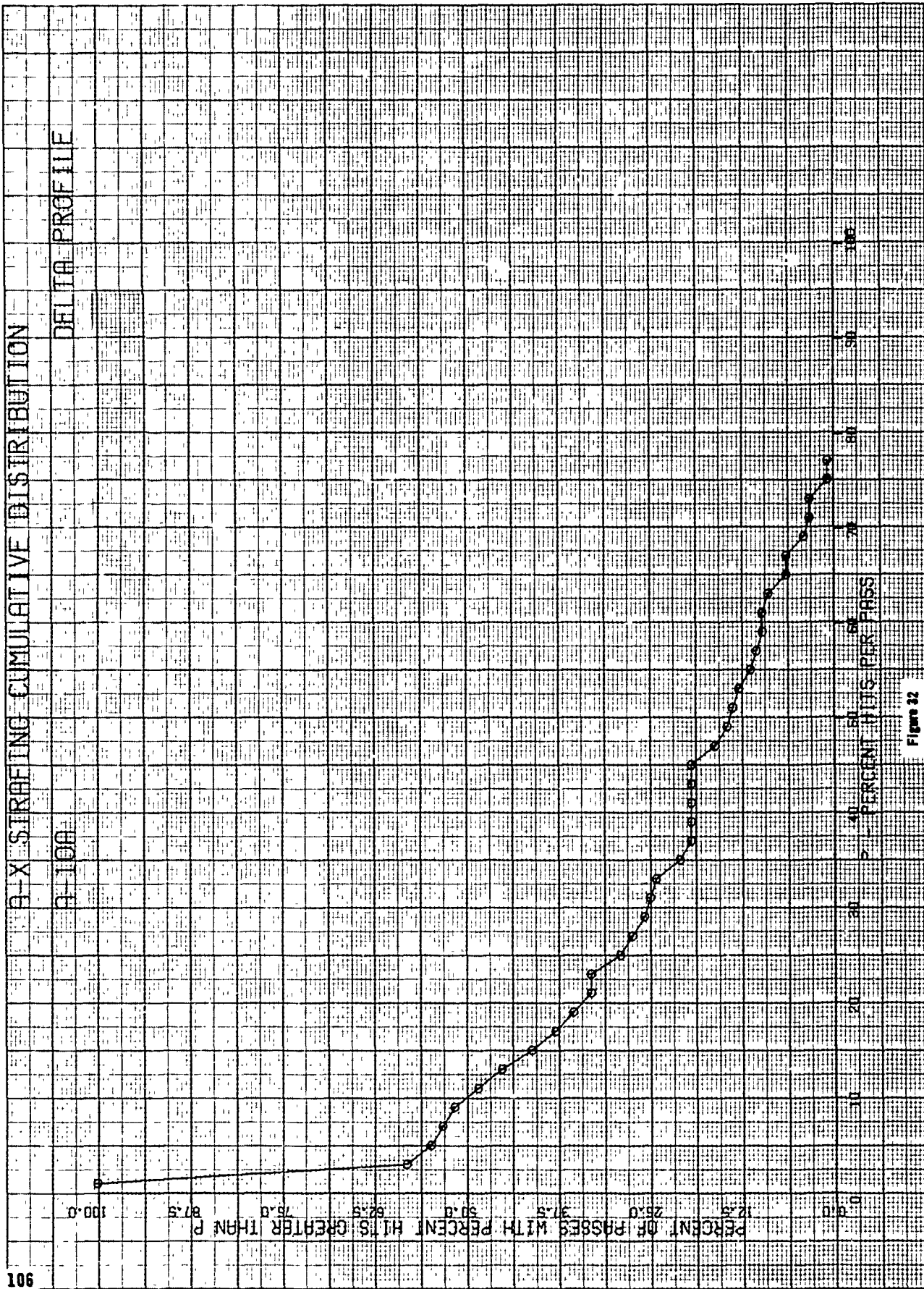


Figure 32

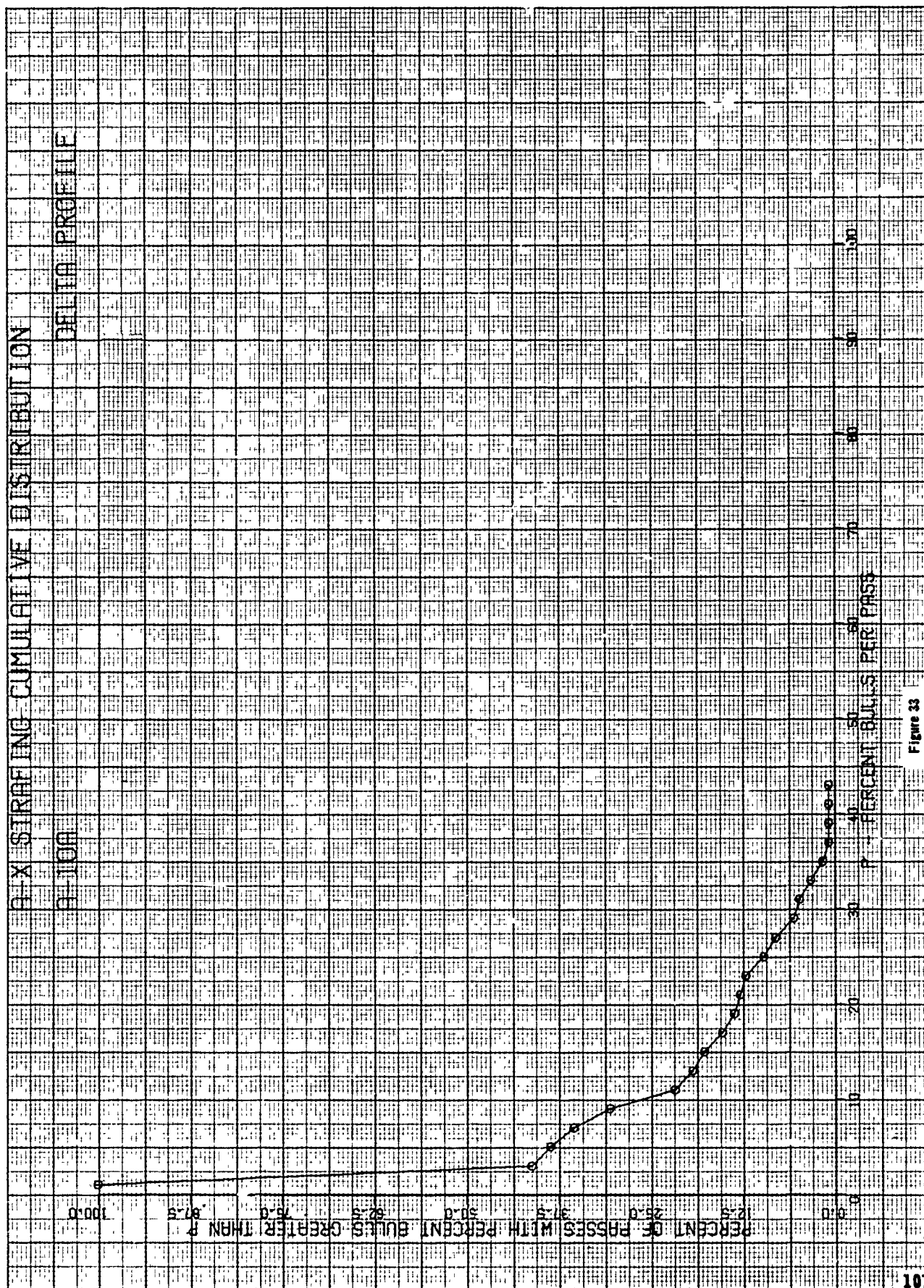


Figure 33

EXHIBIT 9-109

ELITE

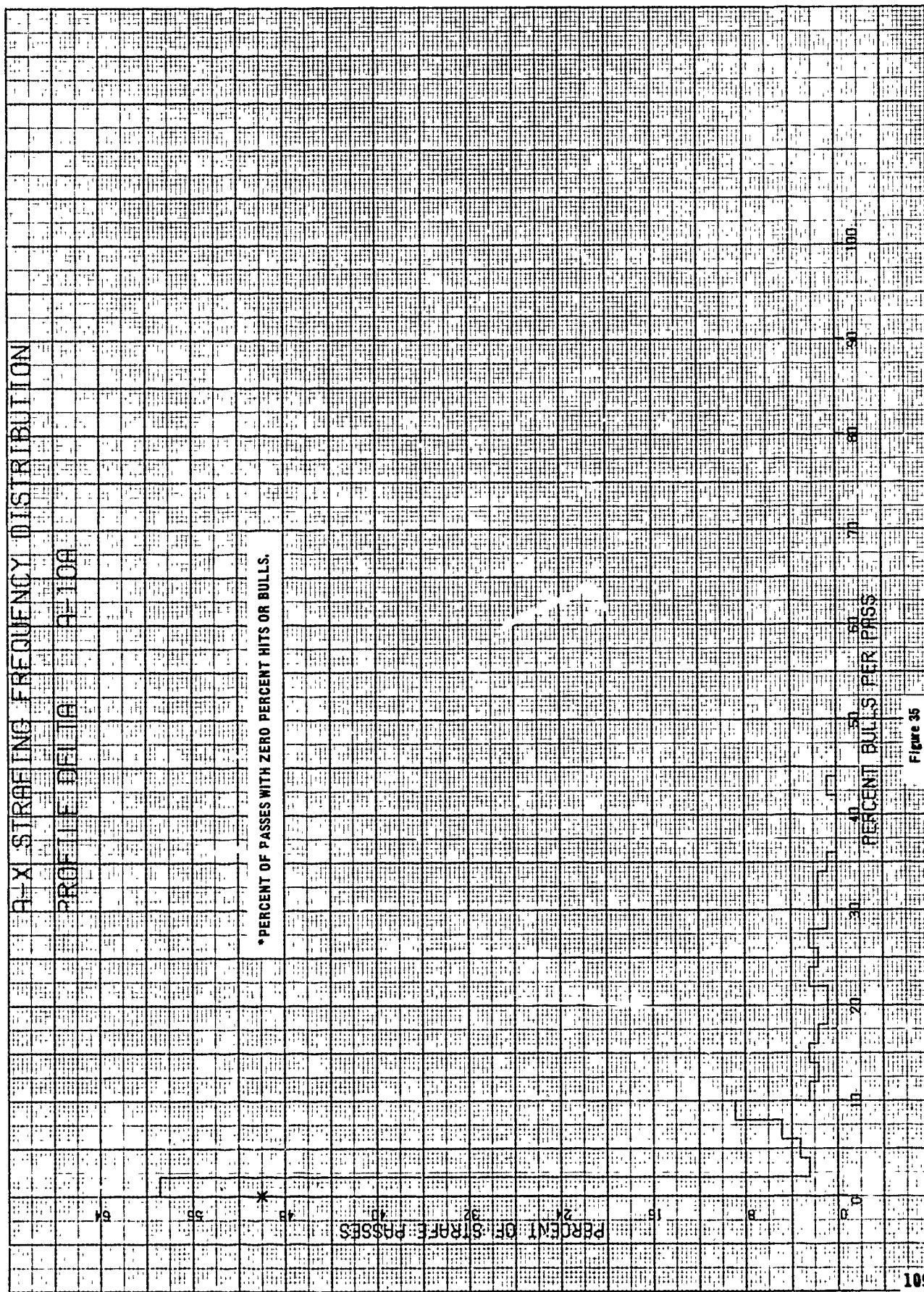
109

***PERCENT OF PASSES WITH ZERO PERCENT HITS OR BULLS.**

PERCENT OF STRAKE PHASES

[illegible]

Figure 24



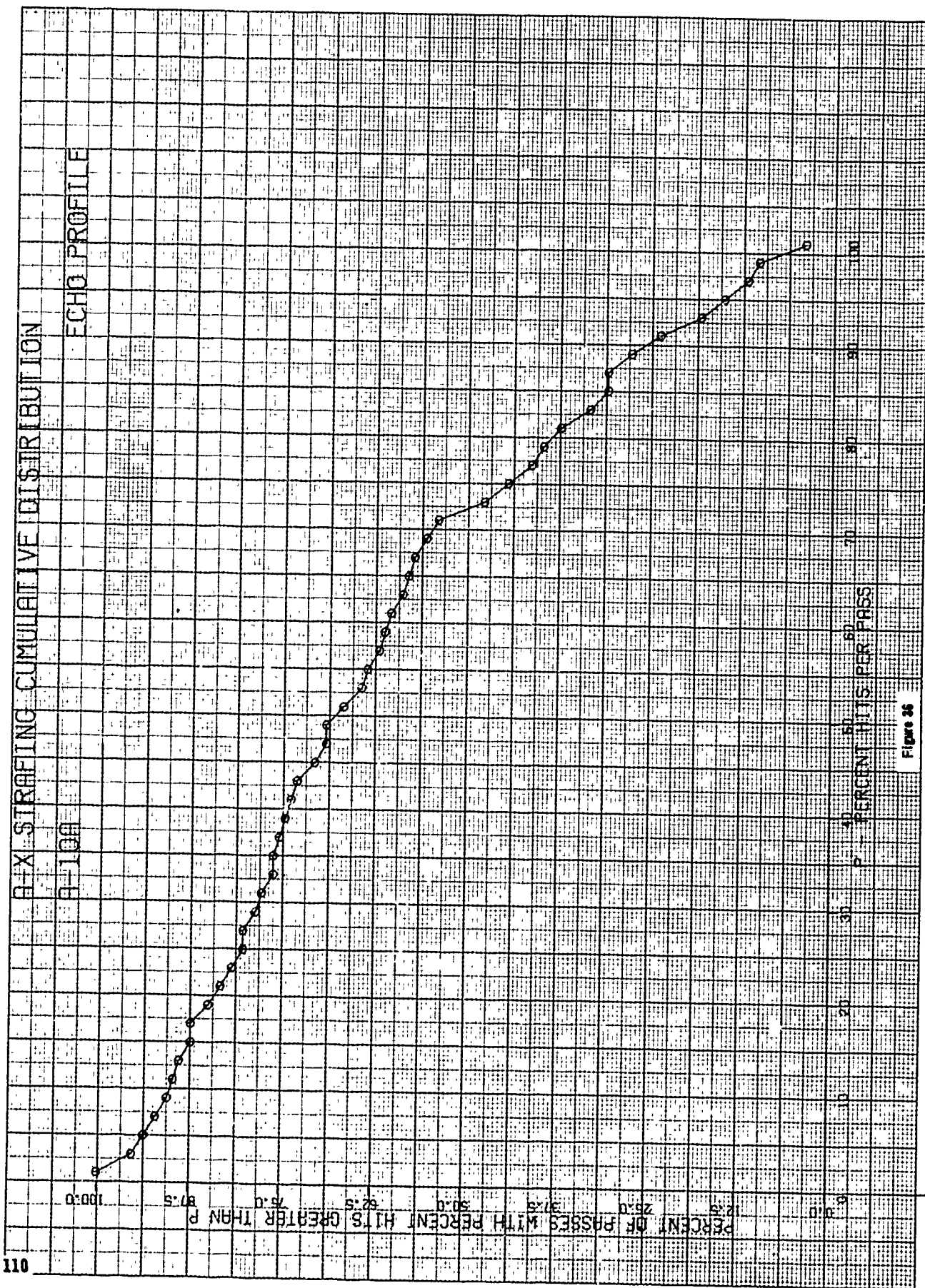


Figure 36

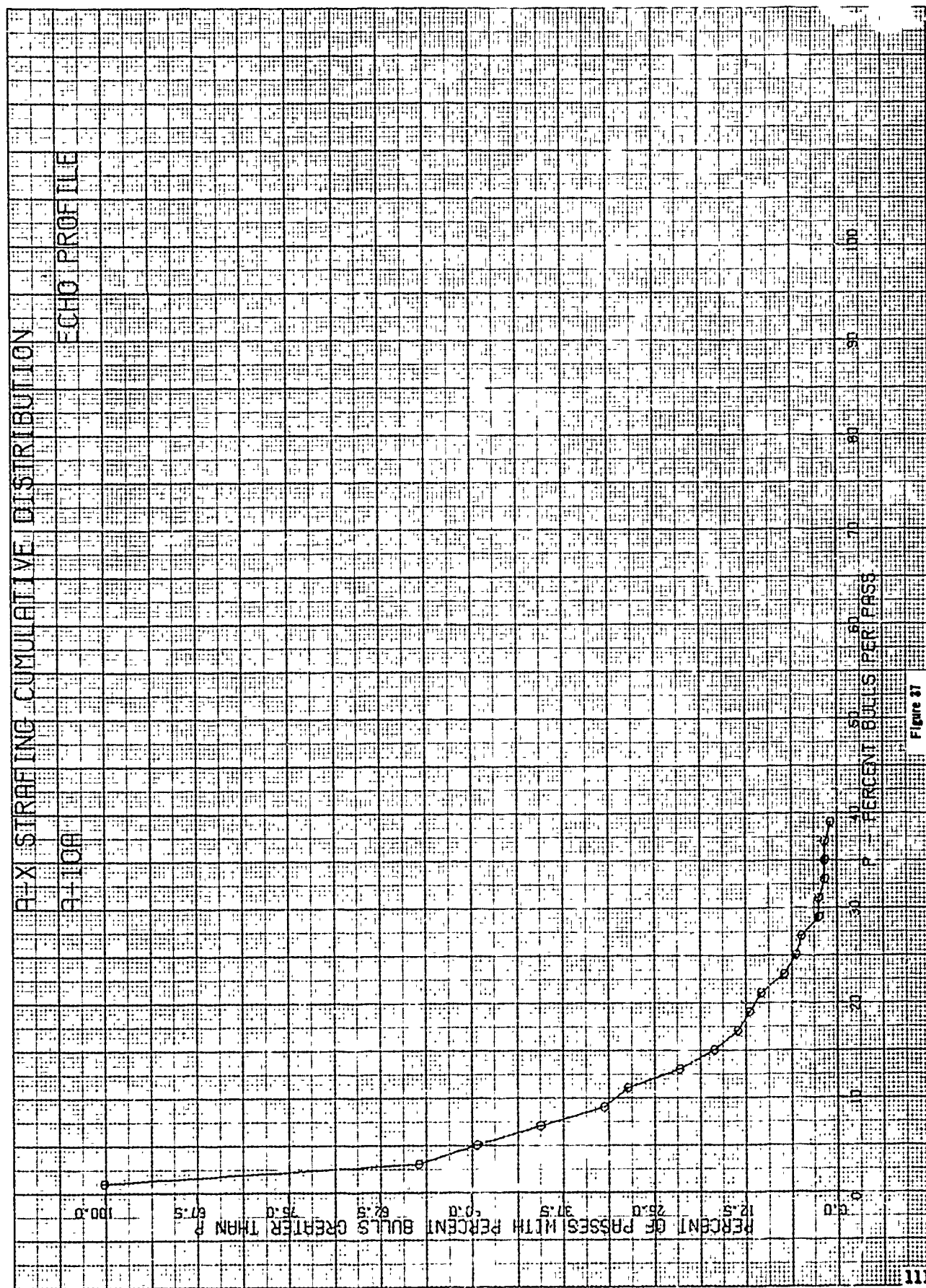
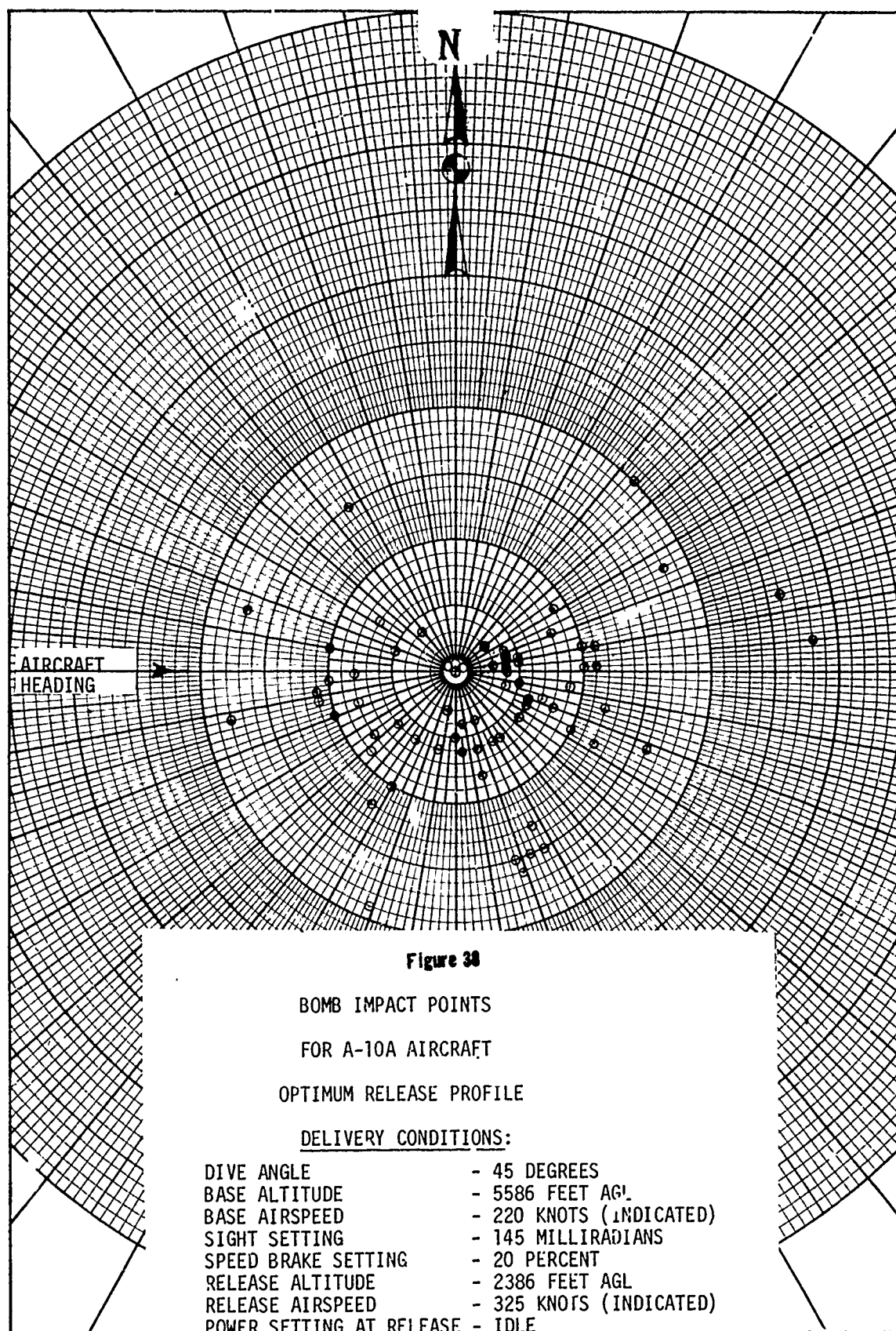


Figure 37



Scale: 1 division = 5 feet

REFERENCE

1. Fortner, Larry D., Major USAF, and Orwat, Joseph C., Captain USAF, A-37 Weapons Delivery Training and Evaluation Program, Technical Letter Report from AFFTC/TGH to ASD/SDX, Air Force Flight Test Center, Edwards AFB, California, October 1972.

UNCLASSIFIED

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13. ABSTRACT The Air Force Flight Evaluation of the A-10A aircraft began on 10 October 1972 with the acceptance of the first aircraft from the contractor. The second aircraft was accepted on 31 October 1972. A total of 138.5 hours was accumulated during 87 flights. The program was completed on 9 December 1972. This appendix presents the results from the <u>Weapon Delivery</u> phase of the AFEE. The basic report, FTC-TR- 73-3, <u>Air Force Flight Evaluation (Systems) of the A-10A Prototype Aircraft</u> , published under separate cover, presents the results of the general system evaluation, quantitative reliability and maintainability, and personnel subsystem test and evaluation. Test authority for the program was provided under Program Introduction Document No. P-71-7-10, submitted by the A-X System Program Office, and AFFTC Project Directive No. F-72-4-9.			

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Security Classification

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	ROLE	WT	ROLE	WT	ROLE	WT
A-10A Aircraft weapon delivery systems evaluation bombing strafing						

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Security Classification